

Journal

of the

Association of American Medical Colleges

Volume 5

MAY, 1930

Number 3

CONTENTS

PAGE

Cooperation Between the College and the Medical School. <i>Herbert E. Hawkes</i> - - - - -	129
Premedical Requirements in Chemistry. <i>H. T. Clarke</i> -	134
Modern Foreign Language Preparation for Medical School Use. <i>H. B. Williams</i> - - - - -	138
Some Aspects of Premedical Education. <i>William Cobb Smeaton</i> - - - - -	146
The Teaching of Physical Therapeutics to Undergraduate Medical Students. <i>Frank Hammond Krusen</i> - -	152
Editorials - - - - -	159
News Items—College - - - - -	152
“ “ —General - - - - -	168
Personals - - - - -	171
Deaths - - - - -	174
Abstracts - - - - -	175
New Books - - - - -	189

Published bimonthly, January, March, May, July, September and November, at 25 E. Washington St., Chicago, Illinois, by the Association of American Medical Colleges. Subscription Price, \$3.00 per year. Single Copies, 75 cents.

Entered as second class matter at the Post Office, at Chicago, Illinois, under the Act of March 3, 1879.

(Continuing the Bulletin of the Association of American Medical Colleges)

Next Fall's Text-books

Suggested Titles published by Saunders

See first page inside →

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

OFFICERS AND COMMITTEES FOR 1929-30

President: WILLIAM DARRACH, New York.

Vice-President: M. H. REES, Denver.

Secretary-Treasurer: FRED C. ZAPFFE, 25 East Washington St., Chicago.

EXECUTIVE COUNCIL

IRVING S. CUTTER, Chairman, Chicago; ALEXANDER S. BEGG, Boston;

RAY LYMAN WILBUR, Stanford University, California;

E. P. LYON, Minneapolis; BURTON D. MYERS, Bloomington, Ind.;

WILLIAM DARRACH, New York; FRED C. ZAPFFE, Chicago.

MEMBERS

Alabama

University of Alabama, School of Medicine, University.

California

College of Medical Evangelists, Loma Linda and Los Angeles.

Stanford University School of Medicine, San Francisco and Stanford University.

University of California Medical School, San Francisco and Berkeley.

Canada

McGill University Faculty of Medicine, Montreal.

University of Manitoba Faculty of Medicine, Winnipeg.

University of Toronto Faculty of Medicine, Toronto.

Colorado

University of Colorado School of Medicine, Denver.

Connecticut

Yale University School of Medicine, New Haven.

District of Columbia

Georgetown University School of Medicine, Washington.

George Washington University Medical School, Washington.

Howard University School of Medicine, Washington.

Army Medical School, Washington (Honorary).

Navy Medical School, Washington (Honorary).

Georgia

Emory University School of Medicine, Atlanta.
University of Georgia Medical Department, Augusta.

Illinois

Loyola University School of Medicine, Chicago.

Northwestern University Medical School, Chicago.

University of Chicago (Rush), Chicago.

University of Illinois College of Medicine, Chicago.

Indiana

Indiana University School of Medicine, Bloomington and Indianapolis.

Iowa

State University of Iowa College of Medicine, Iowa City.

Kansas

University of Kansas School of Medicine, Lawrence and Rosedale.

Kentucky

University of Louisville School of Medicine, Louisville.

Louisiana

Tulane University of Louisiana School of Medicine, New Orleans.

Maryland

Johns Hopkins University School of Medicine, Baltimore.

University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

Massachusetts

Boston University School of Medicine, Boston.

Medical School of Harvard University, Boston.

Tufts College Medical School, Boston.

Continued on Third Cover Page

S

am.
Ch.

Ch.

—

—

—

—

—

—

—

A
V
=

r
n
b

e
s

A
o
b
o
n
d
q
w
fi
t
a

g
it
th
d
o
a
r

JOURNAL
OF THE
Association of American Medical Colleges

Volume 5

MAY, 1930

Number 3

Cooperation Between the College and the Medical School*

HERBERT E. HAWKES
Dean, Columbia College

Since every student admitted to a medical school in this Association receives a considerable proportion of his training in college, it requires no imagination to realize the importance of an intelligent cooperation between the college and the medical school.

The two points of contact where this mutual understanding is most essential may be indicated as, first, the curricular, and, second, the personal contacts.

Let me first say a few words about the premedical curriculum. This Association has laid down certain requirements for admission to schools of the Association, not only of scientific material but of what might be called cultural courses as well. I am not competent to express an opinion as to the extent to which physics, chemistry, zoology and mathematics should be required for admission to medical schools, nor to indicate the content of such courses. I do know that whatever the requirement might be, the eager premedical student that I am familiar with would want to take more of the scientific courses. It is very difficult to convince the boy whose eye is already dazzled by the gold letters on his shingle that he should not devote his entire college time to a scientific preparation for the medical school.

Adequate Scientific Training

There is no question that the college that cooperates most intelligently with the medical school in curricular matters is the one that gives its students an adequate scientific training—yes—but also sees to it that they have a breadth of intellectual interest, an extent of horizon that distinguishes the big man from the little one. Whether one likes it or not, the fact remains that when a college graduate attempts to find and to hold a position either in business or in the professions his back-

*Read at the Fortieth Annual Meeting of the Association held in New York City, Nov. 7-9, 1929.

ground and social qualities are the first facts concerning him that his superiors and associates observe. If these are satisfactory his intellectual abilities have an opportunity to assert themselves. But without these superficial attractions the more solid qualities never have a chance. If this is so, and if the college pretends to make the college residence as complete a preparation for the life work of the student as possible, then it cannot fail to give him both through the curriculum and through the extra-curriculum activities an opportunity to become a person full of live human interests.

Achievement vs. Exposure

How can this best be done? At present, so far as the course of study is concerned, a certain amount of English and of modern language is required—not a certain level of achievement—not that—but a certain length of exposure in a college class. Since my time is closely limited it is impossible for me to develop my thought by such imperceptible steps as to conceal my meaning. Consequently, I will say at the start that I doubt the wisdom of this Association's prescribing the exact courses in college through which a student shall achieve the result that we all desire in the direction of English and modern language. For example, at the present time in Columbia College, and in other colleges of the highest grade, tests are given to incoming freshmen in order to determine whether they ought to go through the regular mill of required freshman English. If a boy shows unusual ability in English and is excused from the college requirement in English it may be wise for him to take another year of English in college, but the chances are against it. In any case I cannot believe that the body whose judgment should decide this question is the National Association of the Professional Schools, one of which the student hopes to attend after three or four years of college work. I know well enough that some college graduates are very weak in English—one may say almost illiterate. It is even possible, though, of course, quite improbable, that a graduate of a medical school who has been held to your requirement might occasionally make a slip in syntax. I am not for relaxing our emphasis on English. My only point here is that the requirement of residence in college courses on the part of this Association is not the most effective way of achieving the result that we all have in mind.

Why Require a Modern Foreign Language?

Then there are the modern foreign languages. For what reason are they required? If this requirement is intended to assure the ability to read the language in professional study, that is one thing. With the

tests of reading that we have it is easy to determine competency in this direction. Is it an introduction to the culture and literature of the French or German peoples that is desired? If so, I am in doubt whether the present requirement of two years of work is adequate. As these subjects are presented one does not get far away from the grammar and the dictionary in two years. Is it a facility in speech or in understanding the spoken language that is desired? If so, the requirement should be more specific than it is.

The whole point to my remarks about English and modern foreign languages may be expressed very concisely. If medical schools want students with certain levels of achievement in these fields let the requirements be expressed in terms of achievement rather than in terms of required residence in college classes, regardless of achievement. We now have objective tests of achievement in English and modern foreign languages so that the residence requirement may be easily translated into terms of accomplishment on these tests. If this were done, the colleges could devote themselves with much greater intelligence to the broadest and most effective preparation of their students for medicine.

The Departmental Required Course

In this connection it is pertinent to remark that evidence is rapidly accumulating from many institutions that the narrowly departmental required course does not serve an effective purpose for so-called distribution of work. We are familiar with the fineness of literary sense and the sensitiveness to the best and highest in the intellectual life which came to a few of the college students who went through the old required courses in the classics. But for every one who appreciated the best that the classics could give there were hundreds who got nothing except facility in avoiding the training that they were supposed to acquire. The classics are mentioned merely as an instance of a case where the requirement of a narrowly departmental course did not accomplish the result that was expected and desired. The same remarks hold in regard to mathematics and the sciences to fully as high a degree. The tendency in our colleges at the present time is in the direction of interdepartmental courses of a survey character, rather than explicit departmental requirements. The student is given the opportunity of finding himself intellectually rather than being subjected to a regimen of forcible feeding. The latter method may preserve life but it does not make for a robust development.

We are all familiar with the academic argument that no man can be called really educated unless he has some knowledge of

—where the blank space may be filled in with the specialty of the speaker. Yet we know certain men who are certainly worthy of being called educated gentlemen for whom algebra is a closed book, or who never read a word in the Latin or Greek language, or who do not know anything about chemistry, or, perhaps, not much about French or German classics. The fact is that the letter killeth; it is the spirit that keepeth alive.

Personality Essential

I must not speak further about the curricular aspect of the possible cooperation between college and medical school but pass to the personal side of things. Physicians more than almost any profession depend for the effectiveness of their results upon their personal qualities. This means that if the college is to do her share in the job of training for the medical profession she must know her students, and she must know them so intelligently that their suitability for the medical profession can be certified in terms that carry weight with the medical schools.

All personnel work in college depends on two postulates: first, young men are not and ought not to be alike; second, in order to make their education effective, the college must know and pay due regard to these individual differences.

I imagine that the first factor does not need to be argued in this presence. But as soon as it is granted, the bottom drops out of the argument for a fixed four year college curriculum, and a college course built around required subject matter rather than around students. The professional school tries to select students who are nearly enough alike in preparation, temperament and ambition so that they can be given a much more uniform curriculum than is wise in the college. In the lower schools, too, perhaps there may be more uniformity because of the central core of knowledge that all ought to have. The reaction against the free development in the lower schools is well expressed by the little girl who asked her teacher one morning, "Do we have to do what we want to today?"

Admitting that boys are and ought to be unlike, the college must become sufficiently acquainted with them to be as sure as possible concerning their fitness for this or that life work, and ready with advice as to the best way to reach the goal. There is so much to say about this aspect of the cooperation between college and medical school that I shall have to content myself with outlining the procedure that is followed in Columbia College.

A mature and responsible member of the faculty is designated as adviser to premedical students. This officer makes it a point to become

personally acquainted with every student looking forward to medicine, and to follow his academic work and his personal plans as carefully as possible. During the month of February of each year a meeting of those members of the teaching staff who are primarily concerned with the premedical courses, that is to say selected professors of chemistry, physics and zoology together with one or two personnel officers, meet for as long a time as may be necessary in order to discuss and to evaluate the fitness of each premedical student for the medical school and for the medical profession. Even though the student's record may be a high one if his personality is not such as to afford promise of effectiveness and success as a practicing physician the rating is correspondingly low. If, on the other hand, a student of mediocre academic record is believed to have ability and training adequate for medical school work, and if in addition his personality gives high promise of success, he is rated high.

This method of rating premedical students renders unnecessary special letters from members of the staff to medical schools in case those medical schools understand the procedure by which the ratings are obtained. Those medical schools to which students of Columbia College have been admitted during the last few years report that the method of rating just described affords by far the most accurate prognosis that they have been able to obtain.

This procedure embodies one part of the policy of Columbia College and of other colleges at the present time to become thoroughly well acquainted with their students so as to give them sound advice concerning their professional or vocational work.

But extra activities in the physical sciences, which are not suggested for combined curricula, may add much to the equipment in preparation for problems of medical research. The textbook of physiology by Bayliss presents numerous and excellent applications of physical chemistry. Colloid phenomena must be considered in physiology and in biochemical problems of medical research. Roentgen-ray methods invoke both physical principles and chemical tests. Similarly extra-curricular studies in psychology will add to the equipment for research in mental and nervous disorders.

These research tools may be acquired most economically during the period of premedical training which need not be protracted beyond the time needed to earn a Bachelor's degree.

Premedical Requirements in Chemistry*

H. T. CLARKE

Professor of Biological Chemistry, College of Physicians and Surgeons,
Columbia University

That chemistry is acquiring increasing importance in the field of medicine will be disputed by none. On the one hand, the physiology of the healthy body is continually receiving new light from this source, as instanced by the organic chemistry of the hormones and vitamins, or the physical chemistry of the respiratory processes; on the other hand, the causative factors of disease are being shown to be largely of a chemical nature, exemplified by the demonstration of the presence of specific carbohydrates in the pneumococci, specific fatty acids in the tubercle bacillus, and by the elucidation of the numerous diseases of deficiency and over-production. This situation is reflected in the ever increasing popularity of chemical testing as an aid to diagnosis.

It thus has become imperative for the practising physician to possess a sympathetic acquaintance with the processes of chemical reasoning. Unfortunately living matter displays no reciprocal sympathy with the chemist. It takes advantage equally readily of the simplest and the most complicated chemical mechanisms, and pays no heed to the conventions under which we arbitrarily subdivide the science. Inorganic chemistry, physical chemistry, organic chemistry all enter on an equal footing into its processes; and all are almost inextricably involved in every biochemical problem.

In view of this situation it appears well to consider again the character of chemical training suitable to the needs of a student entering medical school.

Chemical Training for Medical Student

It is the almost universal custom among medical schools in the United States to give chemical instruction only in the field of biochemistry (or biological chemistry). As has just been hinted, biochemistry does not constitute one of the logical or conventional divisions of chemistry, but is a particular aspect of the science, comprising, to a greater or less degree, all its fields. It thus is necessary for a student of biochemistry to have undergone suitable preliminary training in each of these.

According to the by-laws of this Association, as amended in 1925, the total number of semester hours of premedical study must aggregate

*Read at the Fortieth Annual Meeting of the Association
held in New York City, Nov. 7-9, 1929.

not less than 60 hours, of which eight are assigned to general chemistry and four to organic chemistry. At least four of the semester hours in general chemistry must be devoted to laboratory work, but no practical organic chemistry is required. The study of elementary physical chemistry is recommended as desirable, though not mandatory, as is also additional work in organic chemistry, particularly in the laboratory. These requirements, adopted by the great majority of schools, have undoubtedly been consciously set at the extreme lower limit, in order to avoid the technical penalization of desirable students who have acquired the necessary training in unconventional ways.

Now, in my opinion, it would be better to risk possible injustice to exceptional cases for the sake of raising the general level of pre-medical chemical training. I therefore offer for your consideration a few suggestions for strengthening this training.

A Suggested Course in Chemistry

Lecture-room instruction is well-nigh valueless unless coupled with adequate practical experience. Of the actual time spent in any chemical course, not less than two-thirds should be passed in the laboratory. It is there, and only there, that true ability is acquired and displayed.

Since the science of chemistry rests on a quantitative basis, that is to say, is founded on the constant composition of chemical individuals, it seems to me essential that a considerable part of the premedical student's training in chemistry should be devoted to quantitative analysis. The experience acquired in this form of laboratory exercise, may, it is true, never find extensive and direct application to the problems ultimately confronted in the medical field, but incalculable benefit should thereby be conferred on mental scientific habit.

It is suggested that in the premedical course in general chemistry and qualitative analysis, stress should be laid on quantitative relations, and that this spirit should pervade the laboratory instruction from the very outset. At the same time, the attention of the student should be continually directed toward the ionic implications of his laboratory exercises, since a familiarity with the theories of solution is of immense importance to a good understanding not only of the inorganic chemical processes involved but of the problems later to be faced in the study of biochemistry.

Such a course or courses, the organization of which should present no insuperable difficulties, might be defined as "General chemistry, including qualitative and quantitative analysis and theory of solutions." The work should be arranged to extend over at least two years—more

advantageously three, for there is a much greater chance that the basic principles of any science will become part of the permanent mental equipment of a student when instruction in it is continued through a relatively long period than if concentrated into a short space of time, even though the actual number of hours spent on it be the same in the two cases.

Need for More Chemistry

While realizing that in the existing requirements a larger proportion (namely one-fifth) of the minimum total number of hours is allotted to chemistry than to any other subject, I cannot avoid the conviction that more are needed, if the biochemistry course is to be relieved of its present necessity of devoting a material fraction of its time to instruction in fundamental chemistry. It cannot but be admitted that a total of sixty semester hours represents only about one-half of the number which an average student could and should take during three years. The assumption of a total of 120 hours, of which one-fifth is available for chemistry, leads to the figure 24. This could be made up by three weekly lectures and two half days in the laboratory during two years, though, as already stated, the same time could be more profitably distributed over three years. The same number of semester hours could be devoted to the biological sciences without forcing undue specialization in science on the student.

Require Eighteen Semester Hours

To return to the courses in general chemistry as just outlined, a minimum total requirement of 18 semester hours is suggested, of which not less than nine are credited to laboratory work. These courses should extend over a period of not less than two years, and preferably three.

Organic Chemistry

With regard to organic chemistry, in spite of my own personal predilections, I am less tempted to suggest drastic changes in the present requirements laid down by the Association.

Organic chemistry is too extensive a subject for a medical student to acquire more than a smattering sufficient for the intelligent reception of those features of it to which he will be exposed during his study of biochemistry. I should, however, like to emphasize the desirability of keeping the quantitative aspects of organic chemistry well in view. This course should be given in the later years of premedical study, preferably in the last two, and should amount to a minimum total of six semester hours, of which not less than three are for laboratory work. In the

first semester of organic chemistry the course might well consist of lectures only, practical work assuming increasing importance in subsequent semesters.

There appears to be a tendency on the part of some of the smaller colleges to try to meet the needs of premedical students by offering courses in biochemistry. This seems to me a mistaken form of kindness. Any additional time which a premedical student can afford for supplementary studies in chemistry should be applied to strengthening his grasp of the fundamental branches of the science. The better equipped he is in these, the more advantage will he be able to take of his instruction in biochemistry when he enters the medical school.

Disposal of Elective Time

I beg leave to conclude by expressing a personal opinion on a matter not entirely foreign to the text. This is that students of science in general be encouraged to devote their elective time either to the fundamental sciences cognate to their chosen specialty or to modern languages, rather than to the purely cultural subjects. I yield to none in the recognition of the benefits of a rich life; however—to quote two homely sayings—"You can't make a silk purse out of a sow's ear," and "you can't keep a good man down." Or, expressed chemically, no amount of rain will moisten paraffin wax, but calcium chloride will attract moisture out of the air. Let the student use all his study time for equipping his mind in science, and draw on the atmosphere for his culture.

Modern Foreign Language Preparation for Medical School Use*

H. B. WILLIAMS

Professor of Physiology, Columbia University College of Physicians

Of the advantages to the student of medicine, or of any scientific subject, conferred by an actual mastery of the French and German languages little need be said. Inability to read these languages is virtually equivalent to exclusion from the privilege of reading about two-thirds of the books which are, or should be, in a well-appointed scientific library.

Probably all of our students study one or the other of these languages for a greater or less period of time either in high school or in college, but if one asks the average student to read an article of twenty pages in the original German or French, the objection is likely to be raised that this will require an inordinate expenditure of time.

Why should this be? Surely the same student would make no complaint about reading a similar number of pages in English. The answer is that he has never learned to read the foreign language in the same sense that he has learned to read his own. He has been required to translate with reasonable accuracy selected lessons, making use of his dictionary freely, but to read any considerable work in French or German without translating it, so as to understand the content and be able to give a substantially correct abstract of its content of ideas, is a task which the student of these languages seems usually not to have encountered. This, however, is the kind of reading ability which he must acquire at some time if he is ever to make any considerable use of the vast and precious literature which is printed in German and French. So long as he thinks that he must read by turning every word into a suitable English equivalent, thumbing his dictionary every time that equivalent does not immediately occur to him; so long will the reading of foreign languages seem to him a formidable task, one which he will be most unlikely to undertake unless by some fortunate chance he becomes deeply interested in a matter of which he can obtain information only by such reading.

Meeting the Requirements

There is no question as to the ability or the willingness of the language departments of our schools and colleges to teach a reading

*Read at the Fortieth Annual Meeting of the Association held in New York City, Nov. 7-9, 1929.

knowledge of these languages and the proof of this is that students who major in languages and are deeply interested in them succeed in obtaining this knowledge. Education is not a thing which the best intentioned or best equipped teacher can confer on a student. It must be acquired and most normal young people derive pleasure from the acquisition of certain parts of that body of knowledge which is supposed to constitute a liberal education. Whatever a student becomes thoroughly interested in he is likely to work hard over and acquire. The student who is looking toward a career in medicine or in engineering, or in one of the physical sciences is quite apt to look on the study of languages as one of those things which high authority in educational matters has decided to be good for him, and he will probably appreciate to some extent the reasons therefor and be willing to attempt to finish the prescribed courses, but will be most unlikely to go farther, in fact we could not expect him to do so and consequently we can hardly compare his final linguistic attainments with those of the student whose major interest lies in the field of languages.

Acquirement of Ability to "Translate"

The elementary student is usually required to translate short and simple passages with the help of a glossary, to render into the foreign language similar elementary passages of English and to study concurrently appropriate portions of the grammar of the language in question. Later he probably "reads" a work of some standard author in the foreign language. This reading consists in learning with free use of a dictionary to render each foreign word into the nearest possible English equivalent, the work usually being done in his own quarters so that next day, if called on, he may offer a correct translation.

In time he may become fairly clever at this process and even acquire some ability at translation at sight. This is probably a necessary stage in the process, but for the average medical prospect it is usually the final stage and he finishes the subject with the idea that "reading" a foreign language is just what he has learned to do. If you suggest to him that he should read without translating into his mother tongue, learn to let the foreign words mean objects and ideas to him just as English words do, learn to think in the foreign language; he will probably smile and deem it a task which might be accomplished with years of work, but which he cannot think of attempting.

"Translating" not "Reading"

The student is most unlikely ever to attempt the method which will

be most useful to him in after life for the reason that his teacher is apt to judge his work by his ability to make a correct translation rather than by any ability he might acquire of apprehending the intellectual content of matter written in a foreign language without formal translation. A student gifted with a good memory will eventually acquire remarkable ability at translation if he continues to thumb the dictionary long enough, but he will use up in the process an unnecessarily large amount of time and energy.

The student who has had a year or more of good instruction of the standard type can acquire the art of reading without benefit of further formal instruction. Many, no doubt, have done this by methods of their own devising. A number of my students have successfully applied the method which is here suggested with success.

How to Learn to Read

Let the student procure a very elementary book written in the language which he is learning to read on some scientific subject with which he is already reasonably familiar, let us say inorganic chemistry. Let him start to read this without rendering into English a single word, merely reading the foreign language and trying to think what it means, even avoiding, if he can, thinking what it means in terms of English words, but saying over to himself the foreign words and concentrating his attention on the matter or concept the words represent.

Many of the words will be unfamiliar, but with his initial limited familiarity with the language gained from previous study of the usual type and from his knowledge of the subject matter, chemistry, he should be able to make many fortunate guesses. If a word means nothing, let him pass on and see if even without it he cannot gain an idea of the author's meaning. When he meets a word a second or a third time let him try to see whether the meaning he assigned to it at first will suit the second case, or if it will not do so exactly, whether it is at least consistent with the meaning that seems to be required in the new connection. When the same word is met frequently and difficulty continues regarding its meaning, let it be written down.

After a chapter has been covered in this manner let the student ask himself what ideas he has gained and whether it is his impression that the subject is reasonably clear to him, or whether failure to successfully assign meanings to certain key words prevents him from attaining a complete grasp of the author's thought. Then let him look up the few difficult words and write down their meanings.

Avoid the Dictionary

By avoiding use of the dictionary until he has had time to make full use of the context, his knowledge of the subject matter and memories which do not become immediately available, he will gradually be weaned from the bad habit of prompt resort to the dictionary so soon as he sees a word whose meaning is not at once clear to him. The student who will persist in this practice, taking one after another of the sciences, will soon acquire a vocabulary and the ability to let the foreign words stand for ideas rather than for English words. He is then ready to commence reading in the literature of some subject in which he is interested, articles whose scientific content is not already known to him.

If he applies the same method, using the dictionary only after a first attempt to understand all he can without its use, he will find the occasions when its use is necessary will become more and more infrequent.

DISCUSSION

On papers of Drs. Hawkes, Clarke and Williams.

H. B. WILLIAMS, Columbia University: I should like to answer three questions that were raised by Dr. Hawkes. First, in regard to the matter of speaking languages. I am stressing reading knowledge for the reason that every professional and scientific man has abundant opportunities for using the reading knowledge and not all have equally frequent opportunities for conversation in foreign languages.

I am not making a plea for requirement because it has been my experience that it is difficult to know just what the effect of legislation is going to be in all circumstances and the requirements have a way of coercing faculties, as well as students.

With the condition which Dr. Hawke's paper outlines to us, it is pretty evident that if it becomes known to prospective students that a certain college, other things being equal, rather leans toward students who present certain things, that will have the desired effect. Then as to the cultural aspects, it was not my idea that the student should first learn to read and then study the cultures of France, Italy and Germany in the vernacular, because most students preparing for professional education would not have time to do it in the preparatory years and do it effectually, but if the student acquires a reading knowledge, naturally, he would tend to attain some familiarity with the cultures of the nations whose languages he has studied as a project of his later professional years.

I should like to add one further word of regret for the unfortunate tendency which many of our schools seem to have had during and immediately after the war of abandoning the teaching of German, evidently with the feeling that German culture had fallen short of what was expected of it and our children in the future would not be expected to read German. Truth is true

in any language by whatever nation discovered, and I think we should attest our belief in that by resuming the teaching of German at once.

JAMES SULLIVAN, Commissioner for Higher and Professional Education, Albany, N. Y.: I am bringing to you a message from the Association of Colleges and Universities in the State of New York, which I think is very pertinent to this discussion.

There was read a committee report before that Association at Albany on October 17 and there was considerable heat among the members because of what they called dictation by the professional schools as to the course of study which they should conduct in their colleges. The heat, of course, was very great among the smaller colleges and not so warm with the universities.

They wished to know whether they were supposed to be giving courses for the B. A. and B. S. degrees in these colleges, or whether they were giving a series of courses denominated as prelaw school, premedical school, prearchitectural school, and preteaching school, and they mentioned the recent legislation calling for preprofessional courses in physiotherapy and several other subjects.

How is an ordinary college with 900 students going to give the kinds of courses in chemistry, in modern languages, which you, as scientific men, wish to lay down as requirements? They are interested in giving a man what they call all-round B. A. education which will bring forth a young man who is a gentleman, who has a certain amount of college culture, such culture as can be derived from college. For instance, take modern languages, a college of the kind that I spoke about cannot give a special course involving a vocabulary in technical, scientific and philosophical German. The large university may, and that is the kind of vocabulary which a student needs who is going to go into medical work. But, even with such a course as that, I think that I should probably not wish to take a census of the amount of reading that physicians do,—the active practicing physicians,—in German, French, Italian, and Spanish. I fear that I should get rather negative results.

Then, more than that, the man has to have something more than merely a reading knowledge and know what is meant. I should not wish to go into a clinic to perform an operation on the basis of an article I had read in some German magazine unless I were certain that I had that thing accurately translated.

How are you going to arrange for these various college courses, these various pre-professional courses in anything except the larger universities? I do not see how you can do it. In the second place, the student himself does not always know what he is going to become even when he arrives in college and thus fails to make a proper choice. He certainly does not know it in high school and you can find thousands of boys who go to the high school principal and when he says, "What are you going to be?" the answer is, "I don't know."

"Well, haven't you decided before this time?"

"No."

If you turn to the principal and ask him what he had decided to do at that same age of life, he will probably tell you that he did not know. The same is true of the college student and the college president.

Another evil they called attention to was the evil of having these students

group themselves in prelaw school student associations, premedical student associations, pre dental school student associations, and so forth, thus negating one of the very results you wish to get from college associations—a more or less mixture of all of the students from the different groups of the college, so that they will not begin to designate themselves as physicians before they become physicians, or as lawyers before they become lawyers.

That is a very serious evil because, if you can judge from what the engineers have said, their idea is, "Bless your soul, my boy, come to us with a good education and we will take care of all the technical education that you have to get."

You can see that from your point of view it is very desirable to have this pre-professional education shoved down on the college, virtually dictated to the college, but from the college point of view, it is a very undesirable thing to have so many pre-professional groups in the college. The B. A. group and the B. S. group are being lost in the pre-professional groups. The pre-professional students do not get the kind of cultural mixture, so to speak, with the other students.

The judge of the Court of Appeals, in making its new requirement for prelaw school work said what they wished to do was to have the men, before going into the practice of law, obtain a better cultural background.

I do not know personally about the urgent need of your present requirements. I do have an idea that I should like to see you try the experiment of simply taking a B. A. student without any pre-medical training, testing him at the end of his medical course, and then see if he would not rank just as well or better than the student who got all of this pre-technical education in advance. They used to do it. I remember well when I was an undergraduate that a certain student wrote a John Hopkins University Medical School professor and asked what courses he should take in preparation for the medical course. This was before your requirements were anywhere near what they are at the present time, and the professor replied: "If you go through that college and get the B. A. degree, we will take care of all the technical and professional work you need in our own institution."

Some of our institutions are giving pre-professional courses, as they call them, but they will not list them for the B. A. or B. S. degree. They say they give them because the students ask for them. They also say, "They are not worth much, but we let them have them." You can imagine the discouragement the men are under when they reach that point.

Others are offering what I should call "bargain counter" degrees, certain happy combinations by which you can get two degrees at the same time, and there again the condition is not a desirable one, at least not in the smaller colleges of New York State.

WILLIAM DARRACH, College of Physicians and Surgeons, Columbia University: I would like to counteract one impression that Dean Hawkes may have given. He said that this group that passes on the Columbia students divides them into A, B and C, and he omitted entirely the D group, who are the few unhappy men who are not recommended for any medical school. I bring that out because I do not want any of you to have the impression that the C group consists of undesirable candidates. Each year we take a certain number of

their C group, but, as he said, we do it on our own responsibility. In several instances men from that C group have turned out to be good medical students.

The A group which he spoke of as being those they could consider any medical school would be very proud to have, have turned out to be excellent medical students, good A men, and as we follow them out, I think they yet have to make a mistake in their A group.

The B group, almost all of them, do well, that is, do satisfactorily. Many of them are up in the first quarter of the class, so that we have come to rely on their judgment about the qualifications of these men with more and more confidence each year, and I think it behooves all other Deans and Admitting Committees to take this rating that Columbia passes on their graduates very seriously and with a great deal of confidence.

It has been a very happy experience to have such hearty cooperation with the members of the faculty of the college as we have had here at Columbia, and they have been of great assistance to us in helping us work out our problems which they have come to assume are also their problems.

J. C. SIMPSON, McGill University: I am very much interested in these papers and in the discussion, more particularly in Dean Hawkes' paper, and, even at the risk of putting myself in the humiliating position he has described, I should like to give one instance of cooperation which we have had at our school.

For many years we had, in our Faculty of Arts, a minimum premedical course of two years, and another course with three years of Arts and Science work leading to a combined degree. Our experience was that that year by year we were taking into medicine fewer and fewer men from these courses, especially from the two-year premedical course, and were each year selecting a larger number from the men who had degrees. We felt that something was wrong in both premedical courses, so a couple of years ago Dean Martin initiated a series of conferences between the two Faculties. The Medical Faculty having already expressed the opinion that the primary purpose of premedical education was the foundation of a sound general education and a certain degree of mental training, the Faculty of Arts replied that it was not possible to give the foundation of a sound general education in two years, if at the same time you had to cover the premedical science requirements.

The result of that was that the Faculty of Arts abolished the two-year premedical course and the three-year course leading to the combined degree and instituted a regulation requiring that each student, whether he intended to go into medicine, law or engineering, should enter as a candidate for a B. A. or B. S. degree without any special designation. They laid down, too, that this course should be planned, as far as possible, to meet the requirements of the individual, and not be a cut and dried course that all students would be required to take.

HERBERT E. HAWKES: In regard to Mr. Sullivan's discussion of the premedical courses, I disagree absolutely, fundamentally, theoretically, and practically with what he said about the desirability of the precourses, for this reason: (I could present my argument in an hour, but perhaps I can make it clear in thirty seconds). The great curse of the American college has been its lack of motivation on the part of its students; floating culture which starts

with the clouds and goes up and does not get students anywhere in the direction in which they are supposed to be going.

In my experience with many boys, the thing that gets the boy going and makes him see the importance of the so-called cultural courses, is working out his course with respect to his future, seeing that he will be a better lawyer, a better physician, a better architect, if he knows something about fine arts, history, and economics. It is true, if you can make him believe it; and if they are motivated in their college course by this ambition, the whole thing is centralized around that core, and you then have a group of college students who are headed somewhere. They get the culture, but they get it because they see what it is for.

H. T. CLARKE: It seems to me that we must ask ourselves what is the proper function of a college or a medical school. To my perhaps old-fashioned view, a college is for training young men in specialties, young men who know very well that they are going into the specialties for which they wish to equip themselves. This merely passes back the onus one further stage, back from the colleges to the public schools and high schools. It is there, to my mind, that the training culture should be given.

A medical man has to learn an unlimited number of scientific facts, and everything a medical student does after high school should tend toward training him in the appropriate sciences.

I have children of practically all school ages, and I see that these children are not doing what they might be doing. They are not being worked hard enough. They are not being given the necessary cultural subjects simply because they are not being given sufficient hard work.

H. B. WILLIAMS: If I said anything that gave the impression that I do not believe in broad cultural training for a professional man, whether a doctor or lawyer or clergyman, or what not, I regret it.

The physician deals with men. They are the material of his laboratory when he goes out into life, and we call history, literature, and so forth, the humanities because they are the record of the achievements of men. The cultured physician cannot know too much of the history and achievements of his fellowmen, because the things he will be called on to deal with, other than disease, and just as important as disease, are matters of the behavior of men which will probably be in the future not very much unlike what they have been in the past.

Now as to reading in foreign languages, it is my impression that the best physicians read about as much in the foreign languages as in their own. I think our librarian could give actual statistical data as to that opinion. As to the ability to advise on an operation after reading something in a foreign language, I might say that any competent surgeon, if he were reading an article in Chinese and got a suggestion in Chinese, should be able to decide whether it would be a proper operation to do, and naturally a man has to have some background to get anything out of reading any literature at all.

As to the premedical course, I believe that in a first-class college it ought to be possible for a student to select the equivalent of a premedical course by merely choosing from the courses offered what should be taken, and I think Dean Hawkes might say that is very much the sort of thing that is done at Columbia.

Some Aspects of Premedical Education*

WILLIAM GABB SMEATON

Professor of General and Physical Chemistry, University of Michigan

The topic lends itself to organization in three principal divisions dealing with the following phases of an educational experience and the training that precedes admission to the professional school:

(1) The more or less involuntary phase arising from an influence of inheritance and environment on children during pre-school and early school years, which may confer on them lasting attributes of industry and pertinacity and high moral character. More than any other influence this may contribute to later success academically and professionally.

(2) The discipline of the secondary schools that should be coordinated with the requirements prescribed for admission to medical schools in a way that permits prospective candidates to exercise some freedom in the elections of college courses. It should pay regard, particularly, to the foreign language necessities and to a coordinated and comprehensive science program that includes physics and enough mathematics to permit the election of college physics without additional requirements.

(3) The college training that must round out all prerequisites for admission to the medical school and should furnish in addition considerable cultural background.

Influence of Parentage and Environment on Scholastic Achievement

It is difficult to evaluate in definite terms the influence of parentage and early environment on scholastic achievements and probabilities of later successes in professional careers. Homes in which one or both parents have intellectual interests, usually provide children opportunities to become acquainted with good books. Children from parentage engaged in the learned professions are likely to take on leadership in secondary school activities. Generally, they go on with college training, in which, again, as a class they manifest intellectual superiority.

Different members of such college groups would show great diversities of interests and by no means would all of them have the qualifications that contribute to success in the profession of medicine. But with those who had indicated a preference for this activity, the premedical training would have demonstrated fitness or unfitness for the profession.

*Read for the author at the Fortieth Annual Meeting of the Association held in New York City, Nov. 7-9, 1929.

Hence, all members from such a group who might present themselves for admission to the medical school would be considered good risks.

Basis for Rejections

It is as a basis for rejections that information concerning the antecedents and early home life of candidates would be helpful to admission officers; especially in those schools of medicine that receive applications in numbers far exceeding the capacities of the schools for acceptances. To this end there might be prepared an information blank that would furnish data to supplement the other devices used for determining fitness or unfitness of candidates, such as the scholastic records and letters of recommendation from college teachers, personal interviews and medical placement tests, and the very occasional information that one or both parents of certain applicants have practiced the profession of medicine.

A scheme of this sort, designed for students entering college as freshmen, is in operation at those universities which have adopted the institution of "freshman weeks." A modified scheme might be arranged for students who are about to begin activities in professional schools after two or more years of college experience. Indeed, it should be made a part of the medical placement tests.

High School Work: Importance of Latin

The most effective coordination between high school and college work leading toward admission to a medical school, will relegate to the high school the requirement of at least two years' work in Latin and two years' work in either French or German, together with a year of physics providing laboratory instruction, and mathematics that includes algebra, geometry and trigonometry.

Foreign languages should be started early in a secondary school discipline, at the beginning of the four year high school course or even earlier in the junior high school. I would urge on premedical students the election of Latin during four years of high school training, partly because the subject cannot be mastered without inculcating habits of industry, thus furnishing an excellent intellectual discipline, and partly because the student of science will find Latin very helpful in leading to interpretations of scientific terms that may be viewed for the first time.

In this latter connection Greek also would be useful, but opportunity to acquire Greek is no longer found in public high schools.

It is mistaken pedagogy that considers the classical languages a superfluity in connection with the needs of science students, for the spe-

cialized language of science makes a wide use of Latin and Greek in the invention of new technical terms. This is true, particularly, of medical science.

The obligation to furnish a year of physics with laboratory instruction, and sufficient mathematics, preferably one and one-half years of algebra, one and one-half years of geometry and one-half year of trigonometry, is due to the requirement of college physics in preparation for medicine, for these are prerequisites to the college course.

The Biological Sciences

Other possible correlations play only minor roles. In biological science a single variation from one fixed college procedure may be made with students who have had a year of high school botany. Some colleges place these students in a separate botany course that is substituted for the general course which has no special prerequisites. This does not mean that high schools and colleges operate at cross purposes in biology. There is simply no basis for correlation. Neither does it mean that biology in some one of its various aspects is not a good subject for the premedical student in high school, for substitutes of an inferior educational value might be offered for it. The presentation of high school biology does not shorten the college requirement in preparation for medicine.

General Chemistry

With elementary general chemistry the situation is slightly different. Some colleges offer to students who have had a year of appropriate high school chemistry with laboratory instruction, an advanced course in elementary general chemistry of one semester duration. This course aims to carry students to the same end point that would be reached in one year of college elementary general chemistry. Thus, there is an opportunity for correlation between high school and college in this subject, available to those students who have had a high school course that has been organized with a view toward correlation with the college course.

But, relatively few high schools have facilities that permit the organization of more than one chemistry course. This one should be adapted to the needs of the greater number of students, who are not interested in college training. Such courses will have only occasionally an alignment of interest with college courses.

Lack of physical equipment and lamentably few teachers impose on smaller high schools serious handicaps to coordination with college instruction in foreign languages, mathematics and laboratory sciences.

In larger high schools which offer different academic curricula, usually the emphasis of the science program bears on preparation for engineering, which has fixed requirements in mathematics, physics and chemistry. These are known to the administrative officers and by them are transmitted to pre-engineering students.

If a given school cannot offer the required courses, these students will transfer to another school in which the full complement of required work may be obtained. In this way practically all students who prepare for engineering, have had the same fundamental training on entering the professional school and the preparation is gained in high schools almost exclusively.

Divergence of Premedical Credits

But premedical students enter college with a wide divergence in the number of entrance units that are fundamentally important in connection with their aims. A majority will not have trigonometry; some will not have physics; some will offer Spanish in place of French or German; some will not have Latin.

Evidently many high school superintendents and principals do not know the requirements for admission to a medical school and often they do not realize the responsibilities to the students who are looking forward to this profession. These administrative officers are furnishing to students promiscuous preparation for admission to colleges of literature, science and the arts without regard to the needs of the medical school.

Place of High School in Premedical Training

It is clear that a suitable and relatively uniform training to correlate with premedical college instruction may be had in high schools. Lack of this correlation involves an economic waste on several counts. Avoidable college requirements impose on students more burdensome programs of study and deprive them of opportunity to acquire valuable cultural background in courses not prescribed for admission to the professional school. Obviously, the substitute courses in high school can have only a minor influence in furnishing additional elements of culture.

In some cases these avoidable requirements add a semester or a year to the time consumed in college prerequisites, admittedly a costly procedure. In general, they tend to lower standards of scholarship. A pamphlet containing precise information about all premedical requirements and dealing with coordination between secondary school and college instruction would be very helpful to high school administrators.

Could not this be done through the Association of American Medical Colleges?

Adequacy of Present Premedical Requirements

That the requirements for admission to medical schools supply an excellent preparation for the professional training is shown clearly in statistical studies conducted by the Bureau of Vocational Guidance at the University of Michigan. One of them deals with a small group of 135 students who have all varieties from the Ph. D. degree to the minimal preparation for admission.

Their records during one year in the medical school are compared with time spent in college prior to admission, with medical placement tests that were sustained by all of the group and with quality of premedical college work. No correlation was found between time devoted to college work before admission and accomplishment in the professional school, showing the adequacy of the minimal requirement in preparation for medicine and indicating that students who have only fair qualifications, do not augment appreciably their fitness for the profession by an extra amount of preliminary college training.

This may be seen also in the types of courses elected by such students. Only a moderate correlation was shown between quality of work in the medical school and results of medical placement tests, but a very high correlation existed between grades earned in the literary college and grades earned in the medical school. As a basis of prejudging medical accomplishment, the sciences outweigh the humanities in the premedical training. The first and last of these correlations are checked by other statistics dealing with several thousand students and extending comparisons over all four years of medical training.

The assumption that premedical scholarship furnishes an excellent criterion for judging the probable success of candidates in the medical school, is founded on ample and convincing evidence.

Suggestions for Further Preparation

For general cultural background and extra scientific training beyond minimal requirements, four year colleges offer premedical students various possibilities which are greater in the larger institutions. Combined curricula in Letters and Medicine are to be recommended generally because they offer incentives to higher grades of scholarship and provide excellent background. The practical experience gained in recommended courses of comparative anatomy and embryology and the broadened outlook that may come from discussions on heredity, organic evolution and general anthropology, enhance interest in problems of

the medical course and provide a preliminary technical skill that is helpful throughout the period of professional training.

Reading Course in Science

It might be difficult to introduce a reading course carried out on this plan into the language curriculum, though something of the kind might be attempted where a considerable number of premedical and engineering students are being taught. In some institutions there may happen to be instructors in one of the scientific departments who either by reason of birth or of residence as students in France or Germany, have a good reading knowledge of the language and a good pronunciation. Such an instructor, if circumstances permitted, might arrange to divide his interests to the extent of conducting a reading course in sciences. This experiment has already been tried with success. The reverse would also not be very difficult. A teacher of languages would probably not find it uninteresting to do some general scientific reading of an elementary character in the language he teaches with a view to conducting such a course as is suggested.

Professor Fife, of Columbia, has offered the suggestion that college teachers of scientific subjects might stimulate the interest of their students in obtaining the reading objective by requiring of them the reading of certain articles in either French or German. It seems a pity that so many students should deny themselves the rich privilege which ability to read these languages confers when the accomplishment is so relatively easy.

The Teaching of Physical Therapeutics to Undergraduate Medical Students

FRANK HAMMOND KRUSEN

Associate Dean and Director of the Department of Physical Therapeutics,
Temple University School of Medicine

There is no field which the medical curriculum makers have so universally neglected as that of physical therapeutics. Just a few months ago, I wrote the following editorial published in the *Pennsylvania Medical Journal*.¹

"In the year 1759, the great John Wesley, in his most interesting and quaint booklet entitled 'The Desideratum, or Electricity made Plain and Useful by a Lover of Mankind and of Common Sense,' quoted a certain Mr. Lovett as saying, 'The electrical method of treating disorders cannot be expected to arrive at any considerable degree of perfection till administered and applied by the Gentlemen of the Faculty' (referring, of course, to the physicians of that time).

"Wesley then continued, 'Nay, then—all my hopes are at an end. For when will it be administered and applied by them? Truly—not till the Gentlemen of the Faculty have more regard for the interest of their neighbors than their own. At least not until there are no Apothecaries in the land; or till physicians are independent of them. And if a few of these lovers of mankind who have some little knowledge of the animal economy would only be diligent in making experiments and setting down the more remarkable of them, in order to communicate them to one another, that each might profit by the other's labour, I doubt not but more nervous disorders would be cured in one year by this single remedy than the whole English *Materia Medica* will cure by the end of the century.'

"Again, Hector Colwell states that, 'In a work published in 1886 the statement is made that the then existing insufficient knowledge upon the application of electricity to the treatment of disease is due "to the want of all teaching upon the subject in most of the medical schools.'"

"Electrotherapy is only one branch in the great field of physical therapy, yet these two quotations show the constant apathy of the medical profession toward at least one phase of physical therapy.

"Coming up to modern times, a third quotation gives the same indictment. In a recent issue of the *Journal of the American Medical Association*, a reviewer in referring to physical therapy, makes the fol-

1. "Three Quotations on Physical Therapy and Their Significance," *Penn. M. Journal*, Oct., 1929; Vol. xxxiii, p. 33.

lowing statement. 'The subjects are generally studied inadequately or not at all in medical schools. One of the excuses given for the neglect of these important topics in the medical school has been the lack of a suitable textbook. Unfortunately, the real cause for the neglect of physiotherapy is the ignorance of the framers of medical school curriculums regarding it. As the students of the present become the curriculum makers of the future, we have a vicious circle.'

"Time and again, members of the medical profession make the statement that the reason for the existence of the various cults is because of the lack of interest on the part of the legitimate physician in various physical therapeutic measures. The statement has been made that the average physician is too lazy or too busy to use diathermy, actinotherapy, phototherapy and other forms of physical therapy in his practice. We feel certain that this is not the case. The average physician is certainly not lazy nor is he too busy to apply those therapeutic measures with which he is familiar. The trouble is that he does not know physical therapy, and the reason that he does not know it is because he has never been taught it in his undergraduate course."

This editorial expresses a thought which I feel should come to the attention of the Dean of every medical school.

Teaching Physical Therapeutics

In order to give good undergraduate instruction in physical therapeutics, one must first organize a clinical department of physical therapy at one of the teaching hospitals connected with the medical school. This must be directed by a specially trained physician, who should also be in charge of the teaching of physical therapeutics. It is extremely important that this department be kept as a separate entity, and that it be not submerged in some other department; such as, roentgenology, orthopedics, medicine, surgery or neurology. In various medical schools physical therapeutics has been made a subdivision of one of the above, with, as a rule, I believe, poor results. Too frequently, because of this lack of development of physical therapeutics as a separate entity, the student has been taught, if anything, only a few snatches here and there—massage in medical cases; thermotherapy and heliotherapy in orthopedic conditions; or electrodesiccation in surgical conditions—and he has obtained no real vision of this vast field in therapeutics.

Physical Therapy Departments in Hospitals

It has been reported in the Journal of the American Medical Association, that of a total of 6,807 hospitals, 2,091, or 30 percent, have

² Hospital Number, Journal A.M.A., March 24, 1928.

physical therapy departments. According to Peebles,³ there are 7,000 hospitals in the United States, and, in 1927, 2,100 had physical therapy departments—as compared to 4,400 that had clinical laboratories and roentgen ray departments. Although facilities are still inadequate, this report shows a considerable interest in hospital physical therapy. There are, however, only a few medical schools that are properly teaching their students to utilize these hospital departments. In the same report, Peebles states that, “The present review raises several questions which cannot now be answered fully and satisfactorily.” One of these questions is, “Just why have certain types of practitioners other than regularly licensed physicians and dentists become so extensive in this country, and should any effort be made to reduce them?” I believe that Dr. Peebles’s question can be answered partly by stating that it is because of the lack of interest on the part of medical schools in properly instructing their undergraduates in the treatment of diseases by means of physical agents; and that, if physical therapeutics is put on a rational basis in our medical schools, so that it can be practiced, to a certain extent, by the regular physician in his office, and to a still greater extent in the hospitals, it will require no additional effort to reduce the number of “practitioners other than licensed physicians.”

Coulter⁴ states that each hospital department should be headed by a properly trained physician. How are these physicians to be trained, if we do not educate them in our medical schools? By means of graduate courses? Yes, certainly. No one should specialize in this branch without adequate postgraduate study. How, then, are the physicians who are not actively engaged in physical therapy to know how to use intelligently the growing number of physical therapy departments? By being taught the indications for the use of physical therapeutic measures in their undergraduate courses! There is no longer any question that physical therapy is a valuable adjunct to medicine and surgery, when properly applied. The American College of Surgeons has recognized this fact and has sent out a circular letter urging the establishment of physical therapy departments in all hospitals. The work of the physical therapy departments in the Army reconstruction hospitals and in the Veterans’ Bureau following the World War gave conclusive proof of the value of these forms of treatment. The work which is now being carried on in many civilian hospitals has strengthened this proof.

Place in Medical Curriculum

The great problem at the present moment is not to convince the

3. Allon Peebles—Report of Committee on Cost of Medical Care. Abstract of Pub. No. 3, Medical Facilities in the U. S.

4. J. S. Coulter: A Hospital Physical Therapy Dept. Jour. A.M.A., March 24, 1928; Vol. 90, No. 12.

hospital authorities of the need for the establishment of physical therapy departments. The necessity is for the awakening of the medical curriculum makers to the fact that this important field is being overlooked in undergraduate teaching. The fact that literally hundreds of graduate physicians are flocking to the poorest kind of commercial courses on "physiotherapy" shows that they are conscious of their lack of training in this important subject. If they had been given a short, scientific course in physical therapeutics while undergraduates, such low grade "physiotherapy" courses would not be in existence.

The undergraduate course need not be overly long. The present tendency is to cut down the number of hours in the medical curriculum,⁵ not to increase them. The field is certainly, however, sufficiently important to warrant the introduction of a few hours for its consideration. The undergraduate course should cover only the general principles and especially stress the indication for the use of physical therapeutic agents. A very satisfactory teaching arrangement may be developed as follows.

Course in Junior Year

The junior class is given a series of didactic lectures on hour a week for one-half the college year (a total of sixteen hours). These lectures cover the following subjects:

OUTLINE OF JUNIOR DIDACTIC COURSE⁶

1. Introduction: General consideration of the uses of physical therapeutic agents.
2. History of physical therapeutics.
3. Galvanic electricity.
4. Ionization: Muscle testing.
5. Interrupted and wave galvanic, sinusoidal and faradic currents.
6. Static electricity.
7. High frequency currents.
8. Phototherapy, actinotherapy and thermotherapy.
9. Hydrotherapy.
10. Massage.
11. Therapeutic exercise and muscle training.
12. Review.
- 13, 14, 15 and 16. Clinical application of physical therapeutic agents.

⁵ Report of Committee on Curriculum. Proc. Assoc. Amer. Med. Coll., Mar. 6, 1922, p. 73.

⁶ For a more complete synopsis for teaching of physical therapy, the reader is referred to that of Frank A. Davis, in F. B. Granger's "Physical Therapeutic Technic," W. B. Saunders Co., 1929, p. 158.

This junior course gives the student an introduction to the subject, teaches him general principles, and correlates physiology, pathology and biophysics with the clinical phases of physical therapeutics.

Course in Senior Year

In the senior year, the students are sent as clinical clerks to the physical therapy department of the teaching hospital. This clinic is directed by the physician who instructs the students in physical therapeutics. It is entirely separate from any other department, just as are the clinical laboratory and roentgen ray departments. The students devote two hours, twice a week, for a period of three weeks (a total of twelve hours), to the actual observation of the handling of patients in the clinic. In this time, they can see and use the various pieces of apparatus, and, with proper instruction, they can observe the progress of many patients. The time is too short for them actually to follow many cases from the beginning to the end of treatment, but they may observe from the records the progress of each patient, and they may see cases in various stages of progression. They may learn the rationale of treatment and the prescription of physical agents. We place great stress on this outpatient instruction, and we believe, with Cutter,⁷ that outpatient teaching is very valuable.

Those students who are especially interested in physical therapeutics are permitted to elect several hours a week, throughout the entire senior year.

The few required hours mentioned above are, however, sufficient to give each undergraduate student an introduction to physical therapeutics and to train him to prescribe intelligently treatment of this sort for his patients. In this time he can learn indications and contraindications for the use of various physical agents, and he may learn in which diseases physical therapeutics may be of value. He will know at least enough to prescribe sedative or stimulating massage, rather than just massage. He will know, at least, what a diathermy machine looks like and when to use it.⁸ He will know, at least, what chemical effects can be produced with the positive and negative poles of the galvanic current. He will know something about ionization and muscle testing. He will know enough not to give a tonic dose of ultraviolet light for a sprained wrist. He will, when he begins to practice, have sufficient knowledge concerning physical therapeutics to prescribe it in the proper manner for those cases which require it.

7. I. S. Cutter—Use of Outpatient Department in Medical Teaching, *Jour. A.M.A.*, March 24, 1928.

8. A year ago, the writer found that only two of a group of twenty seniors from a well known medical school knew what diathermy was.

Summary

1. Physical therapeutics has been much neglected by our curriculum makers.
2. Every medical school should establish a short didactic and clinical course in physical therapeutics.
3. In order to teach physical therapeutics, a Department of Physical Therapy should be organized as a separate entity in the teaching hospital.
4. A plan for undergraduate teaching of physical therapeutics in a minimum time is suggested.

Addendum

Since the above article was submitted for publication, the very interesting report of the Council on Physical Therapy, on "Education in Physical Therapy," has appeared in the *Journal of the American Medical Association* for February 8th, 1930. The paragraph on undergraduate instruction reads as follows:

"Undergraduate instruction. This must be modified to meet the curriculum of each school. In the main, the teaching should be clinical. It may all be given by one instructor, or some one may be designated to act as a coordinator of a course in which special lectures from the other departments of the school demonstrate the use of physical measures in their departments. The student should be taught the indications for and the limitations of such therapeutics in order that he may realize that it is a valuable adjunct to routine medicine and surgery. This course should consist of a minimum of thirty-two hours, which may be given in the department of physical therapy or in the other coordinated departments. In the courses given under the auspices of various departments, the coordinator should see that the foregoing didactic and clinical lectures are provided for and that the remaining hours are equally apportioned. If possible, these courses should be given in either the third or fourth year. Where the college regulations are such that it is impossible for them to be listed as separate courses, they may be made an integral part of some standard course, such as medicine, pharmacology or therapeutics."

Our comment on this particular portion of the report would be that we believe most emphatically that physical therapy can *not* be properly taught unless there is a separate and distant department of physical therapy in the teaching hospital of the medical school. We doubt very much whether the most capable coordinator could collect, from various departments, a group of lectures with sufficient interest

to present the entire subject of physical therapy in a systematic, balanced and logical manner. We have so frequently seen physical therapy submerged by being placed under some other department—such as, orthopedics, neurology or medicine—with a consequent teaching of this subject only as it applies to this particular, narrow field—that we strongly urge that no such plan be adopted.

We do not believe that roentgenology or clinical laboratory work could be taught properly, especially in the technical phases, by having the surgeon, internist and other specialists give lectures on the application of roentgenology or clinical laboratory tests to their particular fields. We believe that the director of the x-ray department and his staff, as well as the director of clinical laboratory and his staff, should give instruction in their particular branches, in all their phases. In a similar manner, we believe that the physical therapy department should be developed as a separate entity, with the understanding that it shall serve all other departments, just as do the x-ray department and the clinical laboratory; and that the director of the physical therapy department and his staff should be entirely responsible for the balanced instruction in their branch of medicine.

The director may, if he so desires, have lecturers from other departments speak on certain phases of physical therapy; but let him do most of the teaching and discuss the technic himself, for very few of the physicians in other branches will know the minute details of physical therapy technic and be able to discuss, for instance, "the necessity of combination prescriptions."

The teaching department of physical therapeutics may even be placed under the department of medicine, therapeutics or pharmacology; but in such case, the head of the department should also be the director of the physical therapy department in the teaching hospital, and this department should be a distinct unit, serving all other departments equally.

JOURNAL
OF THE
Association of American Medical Colleges

Volume 5

MAY, 1930

Number 3

DR. FRED C. ZAPFFE, Editor, 25 East Washington Street, Chicago

Congress on Medical Education

The Congress held in Chicago in February was well organized and well attended. Many groups with common interests or, at least, related interests, participated. Hence as many as three groups were in session at one and the same time, which was disconcerting to a few of those present whose interest lay in more than one direction. However, this in no wise detracted from the successful progression of events because most attendants found it possible to be present in the session in which their major interest lay.

Many topics of interest were discussed, by men who without question were well qualified. Space forbids to make mention of more than a few. The proceedings will no doubt be published in full elsewhere.

Full time teaching versus part time teaching was discussed during one of the sessions. Each group had its usual share of supporters, and the antagonists remained as unconvinced as they were after previous discussions of this subject. The truth of the matter is, that much can be said in support of each group. All teachers are not alike. Who would have them so? Some employ one method; others, another. Some prefer to devote themselves entirely to teaching and closely related study from which they derive their inspiration. Others prefer to teach on the basis of practical experience, from which they derive most, if not all, of their inspiration.

It is not a question of idealism and materialism. It is entirely a matter of

personal preference and personal belief. On the whole, however, it must be regarded as a fortunate concurrence, one which we hope will always abide with us, that there are two such groups of teachers because each will stimulate the other. All full time teachers are not good teachers; all good teachers are not full time men. Medical teachers have not concerned themselves overly long with real pedagogy. They were forced to meet a need, a demand for medical practitioners. Now the demand is for better medical practitioners. Without a doubt the full time teachers will contribute fully as much to this need as will the part time or even the practitioner teachers. In order that the pendulum will not swing too far in either direction, let the matter stand as it is.

Hospital problems came in for a goodly share of discussion during several sessions. The hospital men seemed to be greatly pleased and felt well repaid for their attendance at the congress.

The physiotherapists had an excellent program. Their meeting was well attended and the discussions were spirited and illuminating.

The Federation of State Medical Boards held its annual meeting which was attended by more than the usual representation from state medical boards. The principal matter of business was the adoption of a revised and amended constitution and by-laws. Of interest especially to medical educators is the fact that the educational standards of this Association were adopted as being guiding.

The full text of this amendment was published in the March issue of the JOURNAL.

Commission on Medical Education

Letters are being sent out by the Commission enlisting the further financial support of medical colleges and others to permit the continuance of the work of the Commission for another five year period after the expiration of the present one in October of this year.

The work done by the Commission thus far is outlined briefly and future objectives are stated. The Commission has made contacts with many unallied but nevertheless interested bodies and groups, thus broadening its field of work very considerably; for example, industry; cost of medical care; medical economics; state medicine; state insurance and many other topics in which medical practitioners are interested and in which, therefore, medical educators should have an interest.

It is proposed also to enlarge the Commission to include representatives of these various contacting groups. It will be remembered that the original committee of this Association which started the ball rolling that led to the final organization of the Commission consisted of Hugh Cabot, chairman; David L. Edsall and William Darrach. The intention was to organize a body that would make a survey of medical education and everything pertaining thereto, and when that organization was perfected, it was to function entirely independently of any other group. The present Commission is independent. It is not responsible to this or any other organization. There is a field for it.

Those who have received the letter referred to above will do well to read it carefully and familiarize themselves with what the Commission has accomplished thus far and its potentialities. There is a place for it.

George M. Kober's Reminiscences

On the occasion of the presentation of the Kober Medal of the Association of American Physicians to Dr. William H. Welch, a few years ago, Dr. Welch in his speech of acceptance remarked: "I wish time and occasion were suitable for me to say something of Dr. Kober's own important contributions and services to medicine, surgery, hygiene, public health and charities, and indeed I cannot refrain from at least expressing here publicly what others as well as I have urged upon him in private conversation—the earnest wish that he should give the profession as well as the public the benefit of an autobiographical narrative of a long and unusually varied, interesting and useful life."

Dr. Kober has yielded to the wishes of his many friends and consented to publish his Reminiscences under the auspices of the Kober-Foundation of the Georgetown University. The Reminiscences will appear in two volumes of over 400 pages each, ten inches by seven, and will be profusely illustrated. The price for both volumes is \$5.00.

The edition will be privately printed. All desirous of subscribing to the volumes will advise Rev. John L. Gipprich, S. J., care of Georgetown University, Washington, D. C.

The first volume was distributed recently in commemoration of the eightieth birthday anniversary of Dr. Kober. The book is a credit to its author in every way. It is of convenient size, printed on a nonglaring paper, profusely illustrated and written in Dr. Kober's scholarly style. The adventures of a pioneer in the field of hygiene cannot fail to be both interesting and informative, especially when they bear the stamp of authority, because Dr. Kober is an authority on matters of health, both personal and public.

The work is in reality a historical document in the field of public health and

hygiene. Students will do well to read it on being introduced to hygiene in their undergraduate studies; others will regard it as a most interesting record of the notable achievements of one man in this most important field of human endeavor.

Dr. Kober's many friends no doubt are of one mind in wishing him many years of activity and the best of health.

Intern Training

The "Hospital Number" of the Journal of the American Medical Association, March 29, 1930, contains much information of value to those who are interested in intern training, either directly or indirectly.

The Council on Medical Education and Hospitals has made a thorough revision of its list of hospitals acceptable for intern training and the result is that only 629 hospitals are accepted or recognized for carrying this important function. These hospitals provide places for 5,310 interns. Furthermore, 321 hospitals are approved for training of residents in specialties. These provide 1,921 residencies each year. Of these 321 hospitals, 136 are general hospitals, of which 114 also offer intern training.

Thus it would seem that there is no immediate need to provide more internships, but there is a very great need for providing better training of internships.

The internship is in reality an educational year, but, unfortunately, it has become, in large part, a year of service to the hospital out of which the intern could, if he would, extract as much of value to himself as time and facilities permitted. However, a change is already apparent. A few hospitals have interested themselves in the further education of the intern. No one else has, to any appreciable degree, taken an interest in the intern. A few schools claim to have some sort of system whereby they can secure a report on the work done by the intern, but none have developed the system to the extent that it can be made to serve as a basis for grading or evaluating the service.

At the New York meeting of this Association a committee to study this question was appointed. The committee consists of Drs. Irving S. Cutter, chairman; C. C. Baas; E. P. Lyon; C. R. Bardeen and Langley Porter. This committee will report at the Denver meeting in October and no doubt this report will go far to clarify the now existing rather murky atmosphere.

College News

Western Reserve University School of Medicine

The first complete graduate catalogue of the school of medicine was issued recently, listing the 7,260 persons who have received instruction from the institution, going back to 1843 when the Willoughby Medical College moved to Cleveland and set up its classes and clinics at what was the end of General St. Clair's Trail. The work was edited by Frederick C. Waite, professor of histology and embryology.

Gerald S. Shibley has been appointed associate professor of medicine to take effect July 1. Dr. Shibley will occupy a similar position on the staff of Lakeside Hospital.

Roger Griswold Perkins has resigned from the chair of hygiene and bacteriology.

Medical College of Virginia

The Committee on Scientific Research of the American Medical Association has made a grant of \$1,200 to the Medical College of Virginia, Richmond, for the study of lung involvement in human ascariasis. This investigative work will be directed by Dr. F. J. Wampler, professor of preventive medicine, and Dr. Lee E. Sutton, assistant professor of pediatrics. Rather extensive field work as a part of the proposed study will be undertaken during the coming summer.

Dr. George E. Vincent, former president of the Rockefeller Foundation, will give the commencement address on June 3. At this time approximately 190 will be graduated from the schools of medicine, dentistry, pharmacy, and nursing.

Dr. William J. Mayo, Rochester, Minnesota, will deliver the first Stuart Mc-

Guire lecture at the Medical College of Virginia, Richmond, on Monday, May 12.

McGill University Faculty of Medicine

The receipt of gifts totaling \$41,000 has been announced; the largest one of \$25,000 was to the department of neurologic surgery from anonymous friends who established the department by a gift of a similar amount one year ago; \$10,000 was given for medical research. Two bequests were received by the university by the wills of the late Drs. John A. Lane and J. H. B. Allan, the former of \$1,000 to be used for purchasing additional books for the medical library, and the latter of \$5,000 for scholarships bearing the donor's name. Two other gifts of \$1,000 each have been received for a study of infantile paralysis, and one of \$3,100 to be used for research in children's diseases.

Appointments: H. M. Little, professor of obstetrics and gynecology; J. R. Fraser, professor of obstetrics and gynecology; J. W. Scott and C. F. H. Allen, assistant professors of chemistry.

Promotions: E. M. Eberts, professor of surgery; D. L. Thompson, assistant professor of bio-chemistry; W. V. Cone, assistant professor of neurological surgery; John Beattie, associate professor of anatomy.

University of Aberdeen

The Regius Chair of Medicine, which is now vacant and which is the oldest foundation for the teaching of medicine in Great Britain, has been a part-time one at £850 a year. Henceforth it is to have a salary of £1,200 attached to it, in view of the professor being expected to devote more of his time than hitherto

to teaching and research, while additional assistance and facilities for research are to be provided. The holder of the Chair is an Honorary Physician to the Royal Infirmary of Aberdeen, with charge of beds. The appointment to the Chair is made by the Crown on the recommendation of the Secretary of State for Scotland.

Indiana University

Samuel E. Earp has given his collection of nearly 300 important scientific volumes to the library of the School of Medicine, Indianapolis.

University of Pennsylvania

An additional \$250,000 has been received from Eldridge R. Johnson for the further endowment of the Eldridge R. Johnson Foundation for Research in Medical Physics. This gift increases the amount which Mr. Johnson has given to the university during the last ten years to nearly \$2,000,000. The Johnson Foundation is housed in the recently completed Martin Maloney Memorial Medical Clinic Building of the University of Pennsylvania Hospital.

University of Southern California Medical School

The establishment of a medical library has been made possible through the recent acquisition of the professional library of the late Dr. C. Francis S. Tate and the large book collection of the late Dr. Charles W. Bryson. The library will be opened within a few weeks, making available between four and five thousand volumes for reference. The custodian will be Miss Marguerite Campbell, formerly librarian of the Peiping Union Medical College, Peiping, China, and of the Boston Medical Library.

University of California

An anonymous gift of \$100,000 has been received for the support of research

in cancer and allied subjects by the medical school and the Hooper Foundation for Medical Research; this sum provides a total endowment of \$200,000 for research in this field. Mr. and Mrs. George H. Roos, San Francisco, who recently made a gift of \$100,000 for research in thoracic surgery and cancer, lately added \$5,000 for the equipment of a clinic and research laboratory to carry on this work.

University of Illinois College of Medicine

Construction of a \$1,500,000 laboratory building on the site of the old Cubs ball park, at the southeast corner of Polk and Lincoln streets, will begin soon. The brick and stone structure, containing 2,200,000 cubic feet, will provide room for the departments of anatomy, chemistry, physiology, pathology and pharmacology as well as class rooms. In its architectural features, it will harmonize with the English collegiate gothic style of the research hospital, library building, various laboratories, nurses' home, power plant, and laundry, costing about \$4,500,000, which have already been completed, and a building to be devoted to juvenile research which is nearing completion. Plans have been made to accommodate ultimately classes of 200 medical students and 100 dental students, though at the present time facilities in the clinical departments will not permit classes of this size.

Duke University

The hospital library will occupy a three floor department in the nearly completed hospital and medical school building. It is expected to contain 20,000 volumes by July 1. The library covers all fields of medical science, and one of its principal collections is that of the late Dr. J. Howell Way on public health. One of the unusual sets is the thirty-one volume shelf by Leonardo da Vinci, the Italian artist, who wrote all his works

in reversed longhand; a mirror is required to read them. The basement and subbasement floors of the new medical school building will be used for stack rooms and the first floor will be the reading room.

University of Chicago

Ground was broken February 19 for two units of the Home of Destitute Crippled Children. The buildings were made possible through the gifts of \$300,000 each from Mrs. Gertrude Dunn Hicks and Mrs. Elizabeth McElwee. They will adjoin the surgical section of the Billings Memorial Hospital and will be given over almost entirely to wards, the surgical and roentgen-ray services to be located in the Billings Hospital. Included in the features of the new buildings will be a playroom under glass, a large open air playing space on the roof and a room for the latest therapy equipment. One will be known as the Gertrude Dunn Hicks Memorial and the other as the Nancy Adele McElwee Memorial.

Cornell University Medical School

Dr. Henricus J. Stander, associate professor of obstetrics, Johns Hopkins University School of Medicine, Baltimore, has been appointed professor of obstetrics and gynecology in Cornell University and head of these departments in the New York Hospital, effective in September, 1931. Dr. Stander will remain at Johns Hopkins until that time and will act as adviser in obstetrics and gynecology to the New York Hospital in the development of its woman's clinic as part of the plant of the New York Hospital-Cornell Medical College Association.

University of Minnesota Medical School

The number of surgical fellowships has increased from one to five; of these, three are for surgical residents in the

University Hospital and two are in the laboratory service. All of these men are changed from one division to another and in the course of their training spend one year at the Mayo Clinic, Rochester. The increase is said to have been brought about by the construction of the Memorial Cancer Institute and the further enlargement of the facilities of the University of Minnesota Medical School as a result of the erection of the eye, ear, nose and throat pavilion and the Eustis Hospital for orthopedic and pediatric cases.

Owen H. Wangenstein succeeded Arthur C. Strachauer as professor and head of the department of surgery January 1.

Dr. Strachauer will be director of the Memorial Cancer Institute of the university.

Queens Medical College Kingston, Canada

Dr. John Wyllie, of Glasgow, has been appointed to the new Elliot chair of public health and preventive medicine, established through the gift of \$50,000 from Samuel Insull, of Chicago.

Union College Changes Premedical Course

For the past fifteen or twenty years students have been able to take a pre-medical course of three years at Union College and to receive an A.B. at Albany Medical College, the medical department of Union University. After September, 1930, however, this combined course will no longer be offered. Those desiring a bachelor's degree will have to take the four-year college course before entering medical college. This step has been taken so that a broader foundation would be laid for the study of medicine.

University of Georgia Medical Department

In honor of the one hundredth anniversary of the founding of the Medical

Department of the University of Georgia (1828), the alumni of the institution set out to raise a quarter of a million dollars with which to erect a Centennial Memorial Building. The campaign for funds officially ceased January 31, 1930, at which time nearly \$260,000.00 had been subscribed. As soon as an appreciable amount of this fund has been collected the contract will be let for the erection of the building, which will house the outpatient department and some of the preclinical departments. The executive committee hopes to begin building during the present year.

Another innovation is the introduction in the first year of an hour a week for a clinical lecture or demonstration. The purpose of this has been to stimulate an interest in gross anatomy, and the work has been correlated with the dissection. Some of the demonstrations have been the following: lumbar and cisterna puncture, paracentesis thoracis and abdominis. Some of the clinical lectures have dealt with fractures of the cervical vertebrae, hernias, portal cirrhosis with ascites, operations for strabismus and enucleation, and so on.

The foregoing lecture has one hour a week devoted to it for two trimesters. Another innovation this year will be the devotion of one hour each week during the third trimester to work in the library, with special emphasis on compiling bibliographies on special topics and learning how to search the literature.

St. Louis University School of Medicine

Under the will of the late Firman Desloge, his legatees will provide \$1,000,000 for the erection of a hospital for patients of moderate means, to be administered by the school of medicine of St. Louis University and the Sisters of St. Mary.

The institution is to be known as the Firmin Desloge Memorial Hospital.

The hospital is to be erected on the site now held by the university for hospital purposes, opposite the School of Medicine, on the block bounded by Grand boulevard, Motard, Rutger and Vista streets.

"The type of plan for joint administration by the Sisters of St. Mary and St. Louis University has not as yet been elaborated. The donation, interlocking as it does more closely, the interests of the Sisters and The University, comes as the culmination of the agreement entered into in 1924, by which the Sisters of St. Mary, while continuing the ownership of St. Mary's Hospital, St. Mary's Infirmary and Mt. Rose Sanitarium, turned over to the University the complete medical and educational facilities of these three institutions, to be used and administered as a University Hospital.

"St. Mary's Infirmary has been one of the chief teaching centers of the university and the new Firmin Desloge Memorial Hospital will displace St. Mary's Infirmary, the personnel of which, together with the Dispensary, and all adjunct services will be transferred to the new location."

University of Tennessee College of Medicine

William R. Amberson, assistant professor of physiology in the University of Pennsylvania College of Medicine, has been appointed professor of physiology.

Columbia University College of Physicians and Surgeons

Announcement is made that courses will be given this summer in histology, general bacteriology, morphology and biology of tumors, neuro-anatomy and clinical pathology.

George W. Bachman has accepted the position of associate professor of parasitology with duties at the School of Tropical Medicine, San Juan, Porto Rico, and Hans Smetana of the University of Vi-

enna has become assistant professor of pathology at the school of tropical medicine, holding dual appointments in Columbia University and the University of Porto Rico.

Jefferson Medical College

The new college building was dedicated with appropriate ceremonies February 22. The dedicatory address was delivered by George B. McClellan, professor of economic history in Princeton University and a descendant of the founder of Jefferson Medical College.

New York University

Nominations: Charles H. Smith, professor of pediatrics; Paul Schilder, research professor of psychiatry; Ira D. Kaplan, lecturer on radiation therapy; William Snow and Israel Weinstein, lecturers on hygiene; Paul C. Colona, clinical professor of orthopedic surgery.

Promotions: Thomas H. Johnson, clinical professor of ophthalmology; William B. Doherty, assistant clinical professor of ophthalmology; Arthur DeGraff, assistant professor of therapeutics.

Northwestern University Medical School

It is planned to erect on the McKinlock Campus, east of the present location of Passavant Memorial Hospital, a children's hospital and clinic as soon as funds are available. The estimated cost of the hospital is about \$1,500,000, with a capacity of 100 beds. The hospital will be under the jurisdiction of Dr. Isaac A. Abt, professor of pediatrics at Northwestern.

University of Pennsylvania Graduate School of Medicine

The trustees of the North American Children's Sanitarium for the Treatment of Surgical Tuberculosis have given its property, at Surrey and Victoria avenues

and the beach, Ventnor, N. J., to the University of Pennsylvania, under the terms of which the property will be sold by the university, and \$100,000 of the sale price will be used toward the construction of the children's ward of the university's Graduate Hospital at Nineteenth and Lombard streets, which will be known as the North American Children's Ward. The remaining funds from the sale will be used as endowment to be called the North American Children's Ward Endowment Fund.

Temple University School of Medicine

Chevalier Jackson, professor of bronchoscopy and esophagoscopy, recently announced that the board of trustees had decided to construct an extensive laboratory system for research into all phases of diseases of the lung. It was announced also that the Temple University Medical Center, created recently by the consolidation of Temple University School of Medicine, Temple University Hospital and School for Nurses, is preparing to conduct exhaustive researches into the question of the obstruction of the air passages in children, following diphtheria and other diseases.

What was once known as the Samaritan Hospital is now the Temple University Hospital. The new medical school building is rapidly nearing completion. It is believed that it will be ready for occupancy in September.

Junior Fellowships in Surgery Columbia University-Presbyterian Hospital

The surgical department is prepared to receive applications for six junior fellowships in surgery.

Each fellow will be provided with board and lodging, a position in the surgical outpatient clinic, an opportunity

for student teaching, laboratory privileges for the pursuit of investigative work in surgery and an annual salary of \$1,000.

The purpose of these fellowships is:

1. To provide a selective group and higher standards of surgical work in the outpatient department.

2. To provide opportunity for interns who have recently graduated from their hospitals to carry on clinical and investigative work in preparation for practice, or institutional or investigative work in the future under favorable, economic and timesaving circumstances.

3. To train a group of men from whom selections for fellowships or more advanced positions can be made for this or other institutions.

Each fellow will be entitled to four weeks' vacation, every other Sunday, and clinic holidays in rotation.

The department reserves the right to assign supervised operating opportunities to any fellow that it may deem worthy in order to aid him in his particular line of investigation.

It will be expected of each fellow that he work daily, every morning in the outpatient department and be on call on such nights as may be required in rotation. His meals will be taken with the staff of the medical center. He will be an integral part of the surgical department and entitled to attend the general meetings and conferences. He will be expected to pursue investigative work according to his choice in agreement with the director of surgery, not only in the

outpatient department, but in whatever laboratory may be adapted to his problem, when not otherwise engaged in outpatient duties.

Term of service will begin July 1st, 1930, and applications for fellowships must be made before June 1st, 1930 to Dr. Allen O. Whipple, Department of Surgery, Presbyterian Hospital, 620 West 168th Street, New York, New York.

University of Kansas School of Medicine

The first course of lectures under the Porter Lectureship in Medicine was delivered April 1-2, at the Bell Memorial Hospital, by Dr. Lewellys F. Barker, emeritus professor of medicine, Johns Hopkins University School of Medicine, Baltimore. The subjects of the lectures were "Diagnosis and Treatment of the Commoner Personality Disorders"; "Psychology and Medicine," and "Diagnosis and Treatment of the Commoner Personality Disorders."

University of Minnesota Medical School

Announcement has been made of a symposium on the kidney in health and disease to be held in Minneapolis, July 7-18. It is an attempt at correlation of views on account of the high degree of specialization that is associated with intensive scientific development. The program indicates that a very complete survey of the entire field will be made by authorities in this field. The participants are not all members of the faculty.

General News

Basic Science Requirement Interferes with Reciprocity

The State Medical Board of Ohio announces that reciprocal relations with the District of Columbia have been terminated. The reason given for this action is that the Department of Licensure of the District of Columbia advises that applicants from Ohio, holding credentials of graduation from class A institutions, who are licensed by examination, will be required to take the basic science examination before reciprocity is completed.

New England Medical Center

This center will be established in Boston and will present the combination of the facilities of the Boston Dispensary, the Boston Floating Hospital and the Tufts College Medical School. The project is intended to bring back to a position of larger importance the family practitioner and the ideals he represents. Thus will be continued the work done by the college for a number of years. In the last three years its entering classes have been composed entirely of New England residents. Postgraduate and graduate teaching will also have a place in the plan.

The site of the new center will be the present site of the Boston Dispensary. The dispensary itself will be remodeled, a forty-bed hospital for babies and small children will be erected, and a third building constructed to provide additional clinics, teaching facilities and a dormitory for nurses.

In order to carry out these plans \$970,000 will be required for buildings and \$530,000 for endowment to provide additional income necessary to the three institutions. The total amount needed is \$1,500,000.

W. K. Kellogg Foundation for Cancer Research

This foundation has been created by Mr. W. K. Kellogg of Battle Creek, Michigan and Pomona, California. The foundation will collaborate with the College of Medical Evangelists in cancer and other research work. The sum of approximately \$100,000.00 will be available for the first year and further provision will be made as the work goes forward.

Clinics for Plastic Surgery

A division of plastic surgery had been established in the municipal hospitals of New York City with the base unit at Bellevue, a borough base unit at Kings County Hospital and nine field units. In the beginning operative clinics will be held only at Kings County, Bellevue and Lincoln hospitals, and admission clinics will be held at Metropolitan Hospital, Welfare Island; Gouverneur Hospital, Manhattan; Cumberland and Greenpoint hospitals, Brooklyn, and Fordham and Morrisania hospitals in the Bronx, with the probable establishment of operative clinics later. Dr. James Francis Grattan will be director of the division with headquarters at Bellevue, where he will have an attending surgeon and two assistant surgeons. There will also be two assistant surgeons in each field unit. One year's internship for the training of new men for the division will be established at Bellevue, for which two years of general surgical training in certified hospitals will be a prerequisite.

Lois Grunow Memorial Foundation

William C. Grunow, of Chicago, is reported to have given \$1,000,000 to establish a clinical laboratory in Phoenix, Ari-

zona, for the purpose of providing funds to further medical science. The foundation is said to be a memorial for the donor's daughter.

Dr. William Sweet, of Phoenix, has been chosen to head the professional staff of the laboratory. Definite plans have not been announced.

Lane Lectures

Charles R. Stockard, professor of anatomy, Cornell University Medical College, New York, will deliver the Lane medical lectures for the year 1930 at Stanford University School of Medicine, San Francisco, on the following dates: May 5: Medical and Biologic Aspects of Constitution; May 6: Germinal Constitution; May 7: Developmental Constitution; May 8: The Interplay of Inheritance and Environment in Constitution; May 9: Post-natal Reactions and Periodic Changes in Constitution.

Dr. Stockard will also give a lecture, May 7, at the university on "Structural Types in Animals and Men."

Resident Services in Physical Therapy

The department of physical therapy in the Columbia-Presbyterian Medical Center announces a series of three month resident services in physical therapy for graduates in medicine, preferably for those with some training who wish to reside in the hospital and work on the in-patient and outpatient services. The cost of this course will be \$100 a month, and room, board and laundry will be provided. Lectures are given to the medical students weekly and opportunity for any special line of clinical research is available. During the year 1929 the service at the medical center had 3,697 new admissions, with a total of 41,497 visits and 113,985 treatments. The outpatient department covers a floor space of almost 9,000 square feet. Applications for three month appointments, which will be va-

1, should be made by letter, giving full information as to training, experience in general and special medicine and experience in physical therapy. A personal call each three months beginning April history should also be given, telling the applicant's religion, age and other general points of information, as well as medical and premedical training. Applications should be forwarded to the director, Dr. Norman E. Titus, 622 West One Hundred and Sixty-eighth Street, New York.

James Whitcomb Riley Hospital for Children—Kiwanis Unit

Dr. Charles P. Emerson, dean of the Indiana University School of Medicine, Indianapolis, made the dedication address of the new \$165,000 Kiwanis addition on January 8. The dedication brought an end to seven years of effort on the part of the Kiwanis clubs of the state and private individuals for the completion of a modern hospital for the care of all poor children of the state.

The new unit of the hospital will accommodate 50 children and will greatly reduce the waiting list of children throughout the state that at the present time has reached the 150 mark. For the past two years a waiting list averaging 100 poor children in need of treatment has been on file at the hospital.

Dr. Burton D. Myers, dean of the campus division of the Indiana University School of Medicine, was a member of the Kiwanis wing committee in charge of the program.

Hospital for Joint Diseases New York City

Scholarship and Fellowship: The Henry W. Frauenthal Travel Scholarship established 1927 for the study of orthopedic surgery and orthopedic research, six months abroad and six months in the United States. The award is \$2,400 annually.

The Mr. and Mrs. Frederick Brown Fellowship established 1929 for orthopedic research; the income of \$100,000 to be awarded annually to two fellows, \$2,400 each.

Research on Tooth Decay at Columbia

A three year research program was started, February 1, under the direction of the Columbia School of Dental and Oral Surgery, seeking to discover factors which make pyorrhea or tooth decay prevalent. A grant for this undertaking has been received from the Commonwealth Fund whereby \$35,600 has been donated for each of three years. The Columbia workers will cooperate with a group at Yale engaged in a similar project, under a grant from the Rockefeller Foundation, and also with other research workers in this country and Europe.

Mount Sinai Hospital Fellowships and Scholarships

Applications should be filed before February of each year with the Chairman, Fellowship Committee.

George Blumenthal, Jr., Fellowships: Founded by Mrs. George Blumenthal, 1908. Capital sum: \$25,000. Open to men and women with M. D. degree. Available in any American university and occasionally abroad, for study under the direction of the Mt. Sinai Director of Laboratories. Stipend, \$1600 and \$600 a year.

Theodore Escherich Fellowship. Founded 1913. Capital sum: \$10,000. Open to men and women with M. D. degree. Available in any American university, and occasionally abroad, for study under the direction of the Mt. Sinai Director of Laboratories. Stipend, \$600 a year.

Louis S. Frankenhimer Fellowship in Pediatrics. Founded by Misses Ida and Rose Frankenhimer, 1925. No capital

sum. Has been renewed annually for five years. Open to men and women with M. D. degree. Available in the Mt. Sinai Hospital for research in pediatrics. Stipend, \$600 a year. Applications should be filed by December 1.

Moses Heineman Fellowship. Founded by Moses Heineman, 1914. Capital sum: \$10,000. Open to men and women with M. D. degree. Available in any American university, and occasionally abroad, for study under the direction of the Mt. Sinai Director of Laboratories. Stipend, \$600 a year.

Eugene Meyer, Jr., Fellowship. Founded by Eugene Meyer, Jr., 1910. Capital sum, \$10,000. Open to men and women with M. D. degree. Available in any American university, and occasionally abroad, for laboratory training under the direction of Mt. Sinai Director of Laboratories. Stipend, \$600 a year.

There are also about six Research Grants, not of permanent character (two to five years) which vary from year to year. Stipends from \$1,200 to \$3,000 a year.

Research on Trachoma

Provision has been made for a five year research into the cause and cure of trachoma by a gift from the Commonwealth Fund, New York, to Washington University, St. Louis. The gift will consist of a donation of \$50,000 annually for a period of five years and longer if the need exists at the expiration of that period. Dr. Harvey J. Howard, professor of ophthalmology, Washington University School of Medicine, St. Louis, will be director of the research. The work will be conducted in the Oscar Johnson Institute which, with the McMillan Hospital, is now being erected by Washington University and should be ready for occupancy the latter part of this year.

Personals

The board of regents of the University of Michigan has relieved Hugh Cabot of his duties as dean of the medical school; he will continue as professor of surgery. A committee of five will be appointed by President Ruthven to administer the affairs of the school temporarily. Communications should be addressed to the secretary of the faculty.

Samuel Theobald, clinical professor emeritus of ophthalmology, Johns Hopkins University School of Medicine, was honored by the ophthalmologic section of the Baltimore City Medical Society, January 23, the fiftieth anniversary of his discovery of the use of boric acid in direct application to the eye.

Shirley W. Wynne, city health commissioner, has been appointed professor of preventive medicine at New York Polytechnic Medical School and Hospital, and Gaylord W. Graves and Alexander T. Martin, professors of pediatrics.

One of the two fellowships in orthopedic research recently established by Frederick Brown at the Hospital for Joint Diseases has been awarded to David H. Kling for 1930, who will begin research at the hospital on fluids of the joints of the body.

A. R. Vonderahe was promoted from the rank of instructor in anatomy to assistant professor in the college of medicine of the University of Cincinnati.

William A. Osborne, professor of physiology and dean of the University of Melbourne School of Medicine, Melbourne, Australia, addressed the faculty of the University of Colorado School of

Medicine and members of the Denver Medical Society, January 20, on "Application of Recent Advances in Physiology to the Practice of Surgery."

Willard C. Rappleye, New Haven, director of study of the Commission on Medical Education, gave the fourth annual Stanford E. Chaille memorial address at Tulane University School of Medicine, New Orleans, recently, on "The Doctor and the Public."

William J. Harrison has been awarded the Corinna Borden Keen Scholarship for one year for the purpose of pursuing graduate work in ophthalmology under Dr. Ignacio Barraquer, Barcelona, Spain.

Clarence W. Muehlberger, Ph. D., has been appointed professor of toxicology and pharmacology at Northwestern University and assistant director of Chicago's new scientific laboratory for the detection of crime affiliated with Northwestern University. He has recently been the state toxicologist of Wisconsin and professor of toxicology in the state university at Madison.

Louis N. Katz, assistant professor of physiology, Western Reserve University School of Medicine, has been appointed physiologist and director of cardiovascular research at Michael Reese Hospital, Chicago.

Jesse F. McClendon, Ph.D., professor of physiology, University of Minnesota Medical School, Minneapolis, has contributed medical books valued at more than \$1,000 to a student library at the university.

Charles A. Doan of the Rockefeller Institute for Medical Research, New York, has been appointed chairman of the new department of medical and surgical research which is being established in the Ohio State University College of Medicine.

William B. Castle was promoted to assistant professor of medicine in Harvard Medical School.

Frank R. Ober has been advanced to assistant professor in orthopedic surgery in Harvard Medical School.

Detlew W. Bronck has been appointed director and professor of biophysics in the Johnson Foundation for Medical Physics in the University of Pennsylvania.

Eugene Kahn of the University of Munich has been appointed professor of psychiatry in the Yale University School of Medicine.

David L. Edsall, dean of Harvard Medical School, will go on Sabbatical leave May 1 for nine months for travel and research abroad.

Worth Hale will serve as acting dean during his absence.

C. K. Drinker has been appointed acting dean of the Harvard School of Public Health.

George Gellhorn, professor of obstetrics and gynecology, St. Louis University School of Medicine, delivered the annual Bacon lectures at the University of Illinois College of Medicine, March 6.

Earl D. Bond has been appointed professor of psychiatry in the University of Pennsylvania School of Medicine, effective July 1.

Charles W. M. Poynter, who has been acting dean of the University of Nebraska College of Medicine, Omaha, since Sept. 1, 1929, was made dean of the college and superintendent of the medical college hospital.

Hugh Cabot has resigned as professor of surgery in the University of Michigan Medical School to accept the position of senior consultant in the Mayo Clinic.

Edward A. Koch, acting dean of the medical department of the University of Buffalo for several years, has now accepted the deanship.

Dr. J. G. Dusser de Barenne of the University of Utrecht has been appointed professor of physiology at Yale Medical School.

Henry Leffmann, professor of chemistry, in the Woman's Medical College of Pennsylvania, has been elected as honorary member of the Franklin Institute of the State of Pennsylvania.

Edwin O. Jordan and William H. Taliaferro, of the department of hygiene and bacteriology of the University of Chicago, are spending the winter quarter at the School of Tropical Medicine of the University of Porto Rico, San Juan.

Esmond R. Long, professor of pathology, University of Chicago, delivered the sixth Harvey Society lecture at the New York Academy of Medicine, March 20.

Carl F. Ulrich, demonstrator in pediatrics, Western Reserve University School of Medicine, Cleveland, has been awarded a fellowship by the National Committee for Mental Hygiene; he will devote a year to research in psychiatry, spending most of this time at the Pennsylvania Hospital, Philadelphia.

Edgar Allen, professor of anatomy at the University of Missouri, Columbia, has been appointed dean of the school of medicine and director of the university hospitals.

Robert P. Herwick, assistant in pharmacology in the University of Wisconsin, has been appointed acting state toxicologist.

W. R. Bloor, professor of biochemistry in the University of Rochester School of Medicine, was reelected president of the American Society of Biological Chemists.

W. J. Meek, professor of physiology in the University of Wisconsin Medical School, was elected president of the American Physiological Society.

An honorary doctorate was conferred by the medical faculty of the University of Freiburg, March 11, on Dr. Herbert M. Evans, professor of anatomy, University of California Medical School, Berkeley, in recognition "of his conspicuous anatomical and biological discoveries, especially in the sphere of vitamin research, both of which are scientific and of world interest."

Lieut.-Col. Fielding H. Garrison will assume the duties of librarian of the

Welch Medical Library of the Johns Hopkins Medical School, May 1, when he will retire from the U. S. Army.

William Henry Welch, professor of the history of medicine, Johns Hopkins University School of Medicine, will be honored on his eightieth birthday, April 8, by a celebration, which will take place simultaneously in London, Paris, Berlin, Leipzig, Tokyo and Peiping, Baltimore, Cincinnati, New Haven, New York and Washington, D. C.

Evarts R. Graham, St. Louis, professor of surgery, Washington University School of Medicine, will leave for Australia in June to give a series of six lectures at the University of Melbourne during the last two weeks of July on chest surgery and conditions of the gall-bladder.

M. Fernon Nunez has been appointed director of the department of pathology and bacteriology in Marquette University School of Medicine.

Stuart Graves, dean and professor of pathology in Alabama University School of Medicine, has resigned as acting state health officer.

Deaths

Richard M. Pearce, general director of the division of medical education of the Rockefeller Foundation, died suddenly in February of heart disease, aged 55.

Lawrence K. McCafferty, instructor in dermatology, Columbia University College of Physicians and Surgeons, died, aged 39.

William R. Stokes, professor of bacteriology in the University of Maryland School of Medicine, died of psittacosis.

Charles S. Potts, professor of neurology in the Graduate School of Medicine of the University of Pennsylvania, died recently, aged 66, of a pituitary tumor.

Harold C. Bean, assistant clinical professor of medicine in the University of Oregon, School of Medicine, died, aged 40, of a perforated duodenal ulcer.

Samuel C. James, of Gulf Port, Miss., president of this Association in 1904 and 1905, died recently, aged 74. At the time of his presidency he was dean of the now extinct University Medical College of Kansas City, Mo., one of the schools which merged with four others to form the School of Medicine of the University of Kansas.

T. Brailsford Robertson, professor of physiology and biochemistry in the University of Adelaide, died recently, aged 45.

William W. Speakman, professor of ophthalmology in Hahnemann Medical College, Philadelphia, died, aged 64, of cerebral hemorrhage.

James I. Johnston, assistant professor of medicine in the University of Pittsburgh School of Medicine, died of heart disease, aged 62.

James R. Guthrie, emeritus dean and emeritus professor of obstetrics in the State University of Iowa College of Medicine, and an ex-president of this association, died of bronchopneumonia, aged 70.

Henry Albert, for many years professor of bacteriology in the State University of Iowa College of Medicine, died April 6 of peritonitis following an operation for appendicitis.

William House, associate professor of nervous and mental diseases in the University of Oregon Medical School, died recently, aged 56.

James N. West, professor of gynecology in the New York Post Graduate School of Medicine, died recently.

Abstracts of Current Literature

Characteristics of a Medical Student

At the present time there are conditions which have so altered the type of person going into medicine that any one who walks on two legs in the vertical position through a high school and acquires an accredited certificate and then takes a premedical course of two or three years can enter some type of medical school. He has subjected himself to a something which is supposed to develop in him regardless of his heredity or environment those characteristics of head and heart which fit him to go ahead with a medical education. The contents of such a card-indexing system may be too set, they may not be liberal enough with time and full enough with thought to give a person an opportunity to become an individual, to develop traits and characteristics so they may be seen and appreciated, felt, with the hope of deciding whether or not he should become a medical student. These are periods which are frequently packed full of subjects not scientific, but labeled science, which must be rapidly acquired, not to gain breadth of understanding, judgment and poise, but to enable the student by certain mechanical processes in which reason plays but little part to fight his way through another period of four years of checks and receive the label, M. D. He fights valiantly through certain mechanical interferences, courses, and he then wants his reward, and his reward is right often not one of the spirit; it is money. In these periods of education the prospective medical student has not had much time to develop characteristics other than those of rush, gain, and finally, physical success. Many of the new type differ from the old type. Are the characteristics of the new type

just what they should be? If not, can the high school and premedical curriculum be modified so as to give to the new something of the old?—W. DEB. MACNIDER, *Southern M. J.*, December, 1929, p. 1055.

Shortcomings of Early Education

Specialization with a breadth of understanding on which to specialize commences in the early grades of the grammar schools. Even these early grades are not heartily concerned with such fundamentals as reading, writing and arithmetic. It is not uncommon to find students well into their premedical work who can not write either legibly or intelligibly. They have no desire for expression. Apparently they have read but little. They are given courses in arithmetic. As the years of the grammar school go on and the high school is with ease accomplished there would appear to be an increasing number of such incidental courses introduced into the curriculum. These courses should be made attractive and they should not necessarily have as a characteristic the ability to provoke certain intellectual sweats which many of us can recall. They are accomplished without strenuous endeavor and it is just this type of trial and failure and final success which make desirable characteristics. Nature study courses of the type in which the nice lady points out the lovely butterfly very often take the place of partial payments, and the walking through the fields is called laboratory work in science and due credit is given for it. Lucid translations of Virgil have taken the place of the real thing. Isn't there a point just here? The real things, subjects which necessitate earnest endeavor, subjects

which introduce even into the high school curriculum an element of intellectual survival the reward for which is character formation may be either in the process of such modification or permanent substitution by essentially pleasant subjects which do not develop a sturdiness of mind and an appreciation of accomplishment through work. Greek has long since gone, not only the original, but any serious translation. Some fine stories of Greek heroes may be told. More than likely a course in elementary chemistry has taken the place of such treats as Latin and Greek. Not infrequently such a science is given by an improperly trained person in no laboratory or a poor one. The student takes something from a bottle, places it in a test tube, pours on it most any kind of an acid and it turns a beautiful green. This experiment carries the label science; it is checked and the next one taken up with a certain superficial seriousness which covers over the knowledge on the part of the student that he is fooling but getting a credit. This does not breed character. The magic word, Science, is, however used, something is done mechanically because the book said do it. No thought or reason is expected or used. A certain number of carefully guarded Carnegie units are attached to it and the student goes ahead in a mechanical fashion for some more of these units so that he may enter a premedical course at college. He has been made to think of gain and not accomplishment, of advancement, rushed, forced advancement, and not of reason, judgment, poise and beauty. The goal is becoming clearer. Two, three more years of this and then medicine. There are those who can survive it, who can develop characteristics suitable for medicine in spite of it, and there are many who have not been subjected to a type of training which gives to them that which they did not have.—W. DEB. MAC-

NIDER, *Southern M. J.*, December, 1929, p. 1056.

X Graduate Teaching of Surgery

Medical schools, clinics and hospitals offer what may be considered graduate courses in surgery, which include training in pathology, in the diagnosis of surgical conditions, in pre- and post-operative treatment and in assisting in the operating room. But this training, important as it undoubtedly is, does not of itself produce the finished surgeon. He lacks that which most distinguishes him, a thorough training and a wide experience in operative surgery. It is in the sense of producing a finished surgeon, not one who still must complete his training, that our problem is still unsolved and our present methods of training are inadequate. In solving the problem lies a great opportunity for our university medical schools.

Surgery is almost wholly a subject for graduate study. Where does the prospective surgeon pursue this graduate study? His graduate career varies greatly. He boldly goes into practice (this is now rare) and instructs himself through the experience gained by his successes and failures; he affiliates himself with an older surgeon, who becomes his graduate instructor; he connects himself as a junior attending surgeon with a hospital or several hospitals the senior staffs of which direct his course; he associates himself as a fellow or assistant with that recent development in practice, the clinic, the surgeons of which become his teachers; and finally and rarely, through no fault of his own, he enters or remains at a university medical school which provides opportunities for graduate study.

The medical schools have not assumed the leadership in graduate medical education to the extent possible with their teaching staffs, equipment and hospital

facilities, a leadership which properly belongs with them.

Graduate instruction in surgery, as it applies to the training of the surgeon, first was put into effect in university medical schools by Dr. Halsted, Professor of Surgery at the Johns Hopkins Medical School and Hospital. It has been known as the resident system because it implied a long term of residence in a teaching hospital. It was not a "system" of education, rather the antithesis of a system. It was simply graduate or university work.

A rather small group of men carefully selected by the professor (and that to his students was always his name) had placed at their disposal the clinical material in the surgical wards of the hospital and the laboratories of pathology and (later) experimental surgery. They spent from six to ten years in this environment, working. Instruction was by precept and example. All the things which make for the best traditions in surgery not only were exemplified by Halsted and his associate, Finney, but were handed on from residents to younger men. The culmination of the student's term of residence was the post of resident surgeon, a position of great responsibility; for to the resident surgeon, was entrusted the non-operative and operative treatment of the patients in the surgical wards.

The surgical family tree of Halsted shows that of 17 offspring who occupied the post of resident, that is, who fully completed their surgical training up to 1923, six occupy the position of full professors in medical schools (one a professor in various class "A" medical schools throughout the country; five are associate or clinical professors; and six have gone into the practice of surgery without medical school affiliations. Of the 75 offspring who took graduate work but did not fully complete their training, six became full professors in medical

schools (one a professor of medicine); 21 are associate or clinical professors of surgery; 18 are associates or instructors, and 30 are in practice. Of the first generation who became full heads of surgical departments and who, therefore, could determine their own educational system, only two have adopted, in a similar comprehensive way, the "system" of education of their former chief. They are responsible for seven full professors in medical schools, two of whom are in departments other than surgery; 15 are associates or clinical professors (one not in surgery); 31 associates or instructors; and 19 have gone into surgical practice. Of the second generation who became full heads of surgical departments all have adopted the "system," but too recently to speak of results except that they are promising embryos.—GEO. J. HEUER: *Southern M. J.*, Jan. 1930, p. 22.

The Full-Time Medical Teacher

I think it is only a question of time when the full-time man will be demanded and expected in the clinical branches. Certainly the modern demand for teaching in the clinical branches is so great that a teacher must be prepared to give a great deal of time to his teaching. In the first place, a man who is head of his department has certain executive functions that take up much of his time. He has assistants and must direct what these younger men are doing. He has a budget which he must keep up with, a budget which nowadays often is as much as it used to be for the whole school. Therefore many executive functions take up his time. In the second place, he must devote time to the teaching of elementals and fundamentals.

Instead of the instruction of the class en masse, with didactic lectures frequently repeated and large clinics, the tendency nowadays is to put the student in the ward, watching him more closely as

an individual, which necessitates larger departments than formerly. Necessarily, the full-time man also has outside activities to which he must give a certain amount of time. Included in these are the business of the school as a whole, serving upon committees, conferring with these committees, conferring with the dean, with staff members and students, all of which consume time. If he is connected, as of course he is, with a hospital, it is incumbent upon him to help in the instruction of the interns and nurses. Also, he must be active in certain communal, civic and medical activities on the outside. Lastly, and by no means least important, is the ability of the full-time man to engage in research. These other activities may be so numerous he has no time to engage in research, but he must have the ability to lead and guide the younger men and must be able to instruct his students as to how to get to the why and wherefore of each particular complex case.

The teacher should have intensive training in some particular phase of medicine, whether it be as a chemist interested in organic chemistry or biochemistry, or whether it be the study of physics or physiology or the study of pathology, the knowledge of the dead house. A man may be interested in the clinical laboratory, where he has made studies of the blood, for example. He may have had training as an anatomist. A man who is a neurologist has a decided advantage if he has had training in anatomy. A man should have had training in experimental investigation, so that he knows the experimental approach to any question that comes up. The full-time man in theory needs to be a paragon of virtue, having qualities which no man approaches in reality. He should have enthusiasm for his work, for his calling. With that goes the ability to stimulate enthusiasm and interest of the men under him. Next in importance is

love of his fellow man. He must have desire and willingness to aid and help and succor his patients, to show the man who is going out into general work that a patient is not a mere machine, but is a person with a mind and with feelings. He should have patience with his students, with the dull man, the laggard; he should have the ability to interest the bright student, and he should be ready to hear the troubles of each and every one of his men. He should have industry, patience, unselfishness. He should be broad-minded, able to see, willing to learn. Particularly, he should be broad-minded towards the others in his department, and able to see what they are doing and why they are doing it. He should have a sense of humor. He should be able to see the ridiculous in dogmatic teaching. There is so little in medicine that is proven that to make a dogmatic statement is ridiculous, and a sense of humor in a man will keep him from making such statements. He should have a sense of modesty, and be able to appreciate others. He should have the ability to see his own mistakes. The full-time man should be scholarly. A man who devotes a goodly number of hours a day to teaching should have a salary that will compensate him well.—J. H. MUSSER, *Southern M. J.*, December, 1929, p. 1058.

Cost of Medical Education in Great Britain

Since professional education must in any case continue for five years at least (a period exceeded by the vast majority), and since the cost of living varies much in different parts of the country, while personal expenditure varies still more, it can only be said in a general way that anyone who thinks of entering the profession should be prepared for an outlay of at least 1,500 pounds. Something between two-thirds and three-quarters of the whole amount would probably be

spent on maintenance, and the rest in fees, for tuition and examination. In making an estimate of the probable outlay, the many helps available nowadays for the reduction of expense should not be ignored. At nearly all the medical schools more scholarships and money prizes are offered now than in the past; at the Scottish universities bursaries are numerous; and the Carnegie Trust gives pecuniary help to many Scottish students. The main thing to bear in mind is that, as compared with other professions, the period of training in medicine is long, and for most students expensive.—*British M. J.*, Aug. 31, 1929.

Professional Study and Examination

In 1922 the General Medical Council prescribed a readjustment of the medical curriculum, to come into force at the beginning of the following year. The scheme adopted was in effect a compromise between several "schools of thought" which had been debating the matter for fifteen years or more. In this readjustment, among other things, increased emphasis was placed upon sufficient opportunity being afforded for the study, both theoretical and clinical, of those subjects which are now so essential in connection with the treatment centers of a local authority, such as ophthalmology, venereal diseases, orthopedics, antenatal conditions, and infant welfare. The first qualifying examinations based upon this readjusted curriculum were held last year.

The minimum age for registration as a medical student is now 17 years. There has been no formal lengthening of the medical curriculum under the revised scheme, but in practice it has been added to by transferring to preliminary study and examination the subjects of elementary physics and chemistry in their purely scientific aspects. Thus, in addition to passing a preliminary examination in general education, an examination (writ-

ten, oral, and practical) in the elements of physics and chemistry is required by the General Medical Council before the admission of a name to the Students' Register. In the applications of these two subjects to the professional courses—as in biophysics, biochemistry and pharmacological chemistry—appropriate instruction is to continue throughout the curriculum, and is to be tested by examination, so that the student shall no longer be able to put behind him as past and done with the knowledge which he acquired as a preliminary. If he has had no facilities at school or otherwise for obtaining what is necessary for the preliminary or pre-registration examination in chemistry and physics, then he can come for it to the university or medical school but study for this will not count as part of the medical curriculum. In elementary biology comparatively few secondary schools are equipped for tuition, but the General Medical Council has suggested an arrangement for utilizing the work of such schools as are qualified for the purpose. The examination in elementary biology will not be "pre-curriculum," but the instruction may be so, and a licensing body can allow students who so desire to sit for the examination immediately after matriculation.

Besides the resolutions of the General Medical Council in regard to professional education and examination a series of additional resolutions was adopted in 1922, as follows: (a) That throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine; (b) That each licensing body should make adequate arrangements for the effective correlation of the several subjects of study throughout its curriculum; (c) That the teaching of anatomy and physiology should include as a regular part of the courses the demonstration on the living

human body of structure and function; (d) That the curriculum should be so arranged that a minimum period of three years shall in every case be available for study after the completion by the student of the Professional Examinations in anatomy and physiology held at the close of the second year; (e) That the curriculum should be so framed as to afford sufficient opportunities for the study, during the last three years of the course, of physics, chemistry, biology, anatomy, and physiology in their practical applications to Medicine, Surgery and Midwifery, and that the student's knowledge of these applications should be subject to test in the Final Examination; (f) That before the student is admitted to his clinical appointments he should have received practical instruction in clinical methods and in the recognition and interpretation of physical signs; (g) That instruction should be given, in the courses of Forensic Medicine and Public Health or otherwise, on the duties which devolve upon practitioners in their relation to the State, and on the generally recognized rules of medical ethics. Attention should be called to all *Notices* on these subjects issued by the General Medical Council. The Council, it will be noted, attaches great importance to the reservation of sufficient time for the later subjects of study, free from all worries about passing the examinations of the earlier parts. To that end it recommends what is practically a block system. A minimum of three years should be available, not merely after the courses of anatomy and physiology have been taken, but after the examinations in these subjects have been passed.—*Brit. M. J.*, Aug. 31, 1929.

Place of Surgery in Curriculum

Those of us connected with medical schools are all too familiar with the periodic attempts so to change the curriculum of the four-year medical course

as to improve our teaching. We may improve it; but, always thus far the end-result, so far as surgery is concerned, is a student who has been a very incomplete knowledge of surgical conditions, and, if he is lucky in his selection of a medical school, some idea of surgical principles and technic acquired through an operative course on animals. Nor is he in much better case at the end of his intern year; for, due to the more or less general, and, to my mind, unfortunate rule of rotating internships, he has but three or four months to devote to surgery. In no sense is he equipped to do surgery; and should he desire to become a fully trained surgeon he must acquire almost all the knowledge which peculiarly fits him to become one through graduate study.—*GEO. J. HEUER: Southern M. J.*, Jan. 1930, p. 22.

Groundwork of Medical Study

The aim of a medical school should be to teach, not only the essentials of medicine, but also the right principles and methods of adding to knowledge after qualification. Such teaching, to be effective, presupposes a good general education. Next in importance is a good scientific education—a thorough grounding in the basic principles of science. Upon these the student of ordinary intelligence and industry can build up an adequate technical equipment for the practice of his profession. Medicine is an art founded on science, from which it follows that a real training is needed in science and the scientific spirit. An unfortunate tendency of the present system of teaching the preliminary subjects is to produce a temporary "cram" knowledge which is quickly forgotten after the particular examination is passed. This is not how the basic sciences should be studied. These sciences interlock with each other and with the later subjects, and, properly approached, they give a

drilling in exact methods, in precise manipulations, and in vigorous reasoning which will bear immediate fruit in the clinical part of the curriculum and prove of benefit throughout professional life. A sound training in medicine seeks to raise on scientific principles a firm edifice of practical knowledge and skill. Students who hold fast to this idea will regard "cram work" as a weakness in the foundations, and therefore as a hidden danger to the superstructure. Chemistry, physics, and elementary biology prepare the way for anatomy and physiology, and so for medicine and surgery and obstetrics. Changes in the details of the curriculum are needed from time to time, but all authorities are agreed that these preliminary and intermediate sciences form the only appropriate introduction to the study of clinical medicine.—*Brit. M. J.*, Aug. 31, 1929.

Fallacies of Premedical Curriculum

It is difficult to believe that the premedical curriculum is a permanent fixture, that it has been accepted by thoughtful people as an educational process; for education should mean freedom and this curriculum binds and smarts. The origin of the premedical curriculum is of course common knowledge. It came about as one year, then two and then three years tacked on to the accredited high school certificate not to educate but to so narrow a person that he might better understand medical subjects. There is a great difference between being educated, having understanding and knowing medicine. The premedical curriculum with all its narrowness and warping even with the B. S. medical degree appended, has been useful in a transition period in medical education. Likely very soon it will be given up for something better; for four years of study before entering medicine. But just the additional year will not help it; it must be reborn and revamped on the

inside so as to lose its narrowness and specific nature and take characteristics of a kind that will help it to educate. It will then lead to an A. B. degree and our medical educators will shudder. It would help immensely if our medical educators could realize that there is no real danger or harm in the A. B. degree which contains beside premedical sciences subjects which might interest the physician in reading history or even literature.—*W. DEB. MACNIDER, Southern M. J.*, December, 1929, p. 1056.

What Constitutes a Desirable Medical Teacher

First, among the desiderata for our clinical teacher I would mention the possession of clear conceptions of the aims of medical education in general and of the relations of the study of his own field, inner medicine, to the attainment of the goals to be striven for. I would have him realize that the majority of those whom he teaches are to make their living as practitioners of medicine. Such practising physicians must know how to recognize in their patients any incongruities between their vital response and their personal needs for biological performances, how to ascertain the causes of such incongruities, and how, where it is possible, to overcome them and to restore the "normality," or the "adequate responsiveness" of the persons concerned. But I would have the teacher realize also that among his students there will be some who may, themselves, become medical teachers, some who may become preeminently original investigators, and some who may devote their lives to work chiefly in preventive medicine. This double realization should, however, be no handicap to the clinical teacher, for the students that are to become practitioners will have to teach their patients, will have to solve problems that are original (since no two patients are alike), and will have to participate in the work

of disease prevention; moreover, the students that are to become predominantly teachers, investigators, or preventers need first of all the knowledge and training that would fit them to be practitioners in order that they may fully grasp the nature, the significance, and the relations of the specialized activities they are later to enter upon. The clinical teacher should have attained to reasonable mastery of his own field of work and he should be a logical thinker and capable of lucid exposition. Finally, it is desirable that the clinical teacher, besides having the intellectual qualities that inspire the admiration and respect of his pupils, should also have those qualities of mind and heart that make them like him and desire to work with him. He should possess good physical and mental health himself, and it is desirable that he should not be harassed by economic difficulties. He should preferably be of syntone temperament, vibrating in sympathy with those about him. He should be easily approachable and should never be sarcastic with his students. He should have acquired self-control. He should have insatiable curiosity, and should recognize original ideas when they well up in himself or in others. He should know how to inspire loyalty in his co-workers. He should be a good executive, knowing how to plan the work of his department, and he should be capable of quick and just decisions. He should be well acquainted with the whole gamut of human feelings and impulses. He should be a married man and, preferably, the father of children. He should love his work, for the best work of which one is capable is done only when the activity is pleasurable; and this love of work is contagious.—L. F. BARKER, *Southern M. J.*, December, 1929, p. 1060.

The Teaching of Tuberculosis

Medical students, and to a less extent their teachers, are groaning more than

ever under the burdens that are imposed on them. They are apt to become submerged under a deluge of facts, not always even very well selected ones; and both pupils and teachers get impeded in their progress like travelers in boggy country. However well informed a traveler may be, if his footsteps are clogged he cannot get on well even over familiar ground, and if he gets into a strange country, howsoever complete a list of names of mountains, capes and rivers he may have learnt, he cannot advance easily without a map. In medicine the traveler must be provided with a map to steer by. He must have a good grasp of clear first principles to guide him on his journey amongst symptoms, and he must not be harassed by having to memorize a fearful string of facts. He must realize how departures from health come about, and how to bring the sick back to health. Also, he must receive such a grounding in the science of medicine—which is still verily in its infancy though Hippocrates and James Mackenzie have lived and died—that that spirit of curiosity on which all true science depends is not killed before he has been traversing the path of medical study and practice for a few years.

The attempt to develop a scientific turn of mind by administering smatterings of the ancillary sciences ought to be abandoned. The science of medicine must be founded on a study of human beings, and the future of medicine is closely associated with a proper study of the early departure from health, especially such manifestations of slight ill-health as are associated with some of the commoner maladies. All that can be done in the undergraduate years is to instil principles, to put the student on the right path, to give him methods; in other words, to teach him how to study and how to discern between essentials and non-essentials.

A study of tuberculosis involves all aspects of the science and art of medicine. An attempt to unravel the complicated factors leading to tuberculosis leads the student's mind into all the various etiologic influences which are responsible for diseases of one sort or another. The day has gone by when the cause of tuberculosis is summed up in the two words "tubercle bacillus." The sociologic defects in society today, for which remedies are frequently being sought, call attention to the political and medical demands of the public health services. Preventive medicine finds a clear nexus with curative medicine in the problems of tuberculosis. So too, when the bacteriologic and immunologic problems connected with this disease are investigated, education in the practical side of these branches of medicine must be thorough. Immunity in tuberculosis has to be looked at both from the individual and from the racial standpoint. Training in the principles of the etiology of disease would come to be well founded if tuberculosis were used for groundwork.

The two common forms of tuberculosis, the pulmonary and the so-called "surgical," involving chiefly bones and joints, are unsurpassed fields for training students in chest signs and in orthopedics. Observation of the normal and abnormal physical signs of the chest can be learnt better in a hospital or sanatorium for pulmonary tuberculosis than anywhere else. Similarly, what better ground is there for learning the healthy and the abnormal, slight or grave, phenomena connected with the action of bones, joints and muscles, than is to be found in the wards of an institution for surgical tuberculosis? There, too, the dire effects of septic infection are learnt. These remarks apply, too, to a study of radiographic observations, an essential part of medical education. Students can be taught in such places to detect early departures from health. They would also

be led to investigate what really constitute the manifestations of such early symptoms, how these manifestations are produced, and how to classify the mechanisms of their production. Pulmonary tuberculosis, for example, upsets the breathing apparatus, the cardio-vascular system, and produces fever, night sweats, hemorrhagic tendencies and digestive disturbances. In order to diagnose it in its early stages a knowledge of normal chest radiologic appearances must be acquired, and of normal chest signs. But students dealing with tuberculosis would be bound to be taught that symptoms of ill-health, fever for example, or pain, are more important than physical signs, and that a study of symptoms must in the end be the chief guide to a patient's condition and the chief aid in his treatment. A too glib dependence on laboratory tests, often misnamed "clinical methods," cannot co-exist with a proper understanding of how to arrive at the diagnosis of tuberculosis, and how to treat the patient successfully when it is present. Again, the psychology of the patient must be studied if there is to be any thorough grasp of the etiology of the malady, or any effective effort made to treat the sufferer. Not only must his or her mental contentment be brought about in order to accomplish a sound cure, but he must also be instructed by his medical adviser in the simple rules of personal hygiene, often so difficult to inculcate and carry out. To this end the young doctor must learn well the great principles which underlie the rules of personal hygiene, and there is no better school for teaching those principles than the sanatorium.—S. V. PEARSON: *Tubercle*, December, 1929, p. 108.

Training of the Surgeon

What shall the training of a surgeon be? There seems to be no unanimity of opinion; yet when one reads the words of those who have written upon the sub-

ject it appears that all have pretty much the same idea as to what the product of the training should be. He should be a man who has a thorough knowledge of surgical pathology and of the fundamental principles of surgery; a wide experience in the diagnosis of surgical diseases and their operative treatment; a knowledge of the pre- and post-operative care of patients; skill and meticulousness in his operative technic and good surgical judgment. He should have experience in the organization and administration of a surgical department, in teaching and in research work; for it cannot be foretold in what direction he may develop. He should combine with his knowledge, skill and judgment the highest ideals of the medical profession, as exemplified by his teachers.—GEO. J. HEUER: *Southern M. J.*, January, 1930, p. 24.

Too Little Instruction in Pediatrics

One very serious consequence of the idea of pediatrics being a specialty would be that the unsatisfactory state which has up till now prevailed in our medical schools would be continued. From the day of our graduation it must have struck us all as almost Gilbertian that the very duties that in practice we are called upon most frequently to perform—the delivering of women and the care of children—were the very subjects on which we had obtained the least instruction. I do not deny that within the last fifty years there have been changes in the medical curriculum to meet the needs of the times. The subjects of pathology and public health have been introduced, and the teaching of chemistry and physiology has been revolutionized, but within the present century the clinical side of medical education has suffered, and until very recently the teaching of midwifery and diseases of children was really non-existent.—L. FINDLAY: *Brit. M. J.*, December 28, 1929, p. 186.

Know How to Examine a Child

In order that a student may be fitted to enter on medical practice it is essential that he learn how to examine a child. The mere study of diseases of children has an important educational value, and even on this ground alone pediatrics should be given a prominent place in the medical curriculum. By the study of pediatrics the student is bound to become more observant, more expert, not only in the use of those instruments with which he has been provided by nature, but also in the use of those which he has made for himself, and better acquainted with the life-history of disease because of the absolute necessity of this knowledge in the examination of the patient.

Far from being one of the least studied branches of his work it should be one of the most studied. If this decision regarding the value of pediatrics in the teaching of the medical student is accepted, then a very radical change in our medical course is necessary.

There exists in the outpatient department of a children's hospital a great wealth of material, interesting and important from the student's point of view. Therefore it is in the outpatient department (where the work is akin to what his own will be later on) that he should and can obtain most of his training in pediatrics. This system of ambulant treatment of the sick child is not only possible, but it is in many instances advisable, since in this way there is retained for him an individual nurse who will devote night and day to his care. The remedy for the present unsatisfactory state of matters does not mean the erection of large children's hospitals. Indoor accommodation is only necessary for the treatment of infectious disease, for the special study of disease requiring strict supervision and elaborate apparatus, and for the care of children whose home conditions are impossible. I would

recommend that outpatient departments for infants and children be instituted at all general hospitals with teaching schools, so that the medical student may have ample opportunities of getting an insight into this wealth of material. Let the student see most of his adult material in the wards and the bulk of his young patients in the outpatient department, and let most of his dispensary practice be among children. With an efficient staff of enthusiastic teachers the student would benefit to a tremendous extent.—L. FINDLAY: *Brit. M. J.*, December 28, 1929, p. 1186.

Greater Versatility of Medical Graduate

Within recent years there have been great developments in medicine, and that many new fields—for example, throat and nose, gynecology, and radiology—have been opened up, and that it is impossible for any one man to be expert in all these branches of medicine. Nevertheless, I do hold that it is possible for the graduate in medicine to be more versatile than he is. This, I am afraid, must mean more time given to his education. Medicine is no finite subject, but is always advancing, and what new vista will be opened up tomorrow no one can say. The possibilities in the discovery of the cause and prevention of disease are unlimited. This may be, and often is, in what appears to us the most unlikely direction, but it behooves those who practice medicine to be as catholic in their interests as possible. Instead of curtailing, as some reformers suggest, the number of sciences which we have been wont to learn, or at least gain an introduction to, the number of subjects and period of our study should be increased. Instead of five years, the medical course should, as it already does in Sweden, extend to seven or eight years.—L. FINDLAY: *Brit. M. J.*, December 28, 1929, p. 1187.

Relation Between Surgery and Medicine

Surgery and medicine today are different only in their therapeutic methods. Both employ the same methods of history-taking and physical examination and the same laboratory aids and instrumentaria in diagnosis. But the moment the diagnosis is made and therapeutic measures indicated their paths diverge. The surgeon's therapy, his operative treatment of physical ills, is the one thing which distinguishes him. The possibilities of harm to the patient, if this is misdirected or badly performed, are so great that its acquisition should not be left to haphazard methods. The failure to provide actual and considerable operative experience under proper direction is, to my mind, the greatest single criticism of the various so-called post-graduate schools of surgery in this country.—GEO. J. HEUER: *Southern M. J.*, January, 1930, p. 26.

Medical Education in Cuba

Before students can enter the University in Havana they have to complete a four-year high school course. Students are not allowed to enter the University until they have attained the age of seventeen years. Before entering the medical school they must pass a preliminary year of premedical studies. This premedical course consists of physics, chemistry, pathology, biology and one foreign language, English or French. When they pass these studies they enter the medical school. In the medical school they have two years of basic studies, anatomy two years, physiology two years, histology and embryology one year, pharmacology one year, medical chemistry one year, biological chemistry one year, and bacteriological chemistry one year. Every year has one hundred and fifty hours, practice and lectures. When they pass these two years they go on to the patho-

logical studies. In this they have general pathology, two years; microscopy (which is laboratory practice), one year; topographic anatomy, one year; pathological anatomy, one year; parasitology and tropical diseases, one year; radiology, one year; medical pathology, one year; surgical pathology, one year; obstetrics, one year; and experimental pathology, one year. Afterwards they spend two years in clinics and in specialties. In these two years they need to complete the medical clinic, two years; surgical clinic, two years; clinical pathology, two years; gynecology, one year; diseases of children, one year; genito-urinary diseases, seventy-five lectures; orthopedics, seventy-five lectures; diseases of the eye and diseases of the ear, nose and throat, each thirty lectures, and thirty to forty-five practical courses in small groups. We have another year of dermatological diseases and syphilis; mental diseases, thirty-five lectures; hygiene and legal medicine.

When they have finished all this material, they are required to stand an examination. These examinations are in two parts, one of which is clinical. In this clinical work they have to demonstrate before the examiners one case of children's diseases, one surgical case, one mental case, and one gynecological case. They are also required to perform one operation on the cadaver. We have one or two head professors in every department, one or two auxiliary professors, and two or three assistant professors, and some instructors. We have not now full-time professors.

The hospitals of Havana do not belong to the University. The poor of Cuba are treated by the medical school and all the physicians in that hospital are professors in the medical school. We have now two hospitals, one of four hundred beds and one of twelve hundred beds. Every professor has the control of his department. Under this ar-

rangement every department has an x-ray department, a laboratory, and so forth. In the Mercedes Hospital there are three x-ray departments and three or four laboratories, and in the other hospital there are eleven x-ray departments and eleven or twelve laboratories.

Every year, when the medical course is finished, we give some special prizes to the best students. The best students, two or three of them, are sent to the United States and Europe as traveling fellows in order to give them opportunities for improvement. We now have outpatient departments in all the clinics.

We have two thousand students. The fees for each branch per year are \$30. We graduate about one hundred and eighty or one hundred and ninety every year. We have now ninety-eight professors.—L. F. RODRIGUEZ-MOLINA, *Southern M. J.*, March, 1930.

Length of the Medical Curriculum

In my opinion the length of the medical curriculum demanded by all qualifying bodies, should be six years. In most of the great medical teaching centers of the world, the length of the curriculum is six years, and in a few it is longer, as for instance at Copenhagen, Koenigsburg and Oslo seven years and in Sweden nine years. Of all the countries Sweden has the longest medical curriculum, so that a student commencing at the usual age of 18, does not become qualified until he is 27, and is he intends to become a specialist he has to train till he is 30. The extra time, beyond that which is required in our country, is employed abroad in clinical work and although, as a fact, the student can pass his final examinations in five years, he is not allowed to start in private practice until he has spent another year in the hospital doing clinical work. There is much to be said for such a system.

At present there are three universities only which demand a six years training.

Bristol, Oxford and Wales. Three universities, Leeds, London and Manchester require five and a half years, and the remaining universities and licensing bodies require five years. As a fact the number of years taken by the majority of medical students to qualify is at least six.

If one considers the length of the curriculum from another standpoint, namely from the passing of the second examination to the final, there is still sufficient time to allot a proper period for the training in midwifery and diseases of women, even if the curriculum is five years only. By lengthening the curriculum to six years there would certainly be, not only ample time available for such a training, but also there would be as much time, as at present, and even more, for the student to prepare, free of all the cares of office, for his final examination.

The regulation time a student must spend in his medical studies between his second examination and his final, is 36 months. How this time is spent must vary in different hospitals. The following table shows how it can be spent at my own hospital.

Outpatient clerk in medicine and dresser in surgery, 3 months; inpatient clerk in medicine, 6 months; inpatient dresser in surgery, 6 months; dresser to the ear, nose and throat department and to the orthopedic department, and clerk to the neurologic department, 3 months; dresser to the ophthalmic department and clerk to the dermatologic department, 3 months; dresser to the maternity and gynecologic department, 6 months; anesthetic clerk and vaccination, 1 month; fevers and mental diseases, 3 months; leaving for preparation for final examination, 5 months.

It is true that this computation does not allow for any holidays on the face of it, but all students manage to take a yearly holiday during the occupation of

one or other of these offices. If, however, the curriculum is lengthened to six years there is ample time for work and holidays. I often wonder whether it is really necessary for a student intending to engage in private practice, to attend every special department.

Students should not be allowed to attend any other departments than those of the prenatal, postnatal and infant welfare while engaged in their midwifery training.

Teaching of Midwifery

The excess of gynecologic training over that of midwifery which obtains at most centers is quite wrong. Out of the six months allotted, four months should be devoted to midwifery entirely, with its ancillary services of prenatal, postnatal and infant welfare. No student can hope to study efficiently midwifery and gynecology until he is grounded thoroughly in the principles of medicine and surgery. Every student should be compelled to reside for two months in a maternity hospital, or in some building in its immediate neighborhood, or if his parent hospital has an efficient maternity department as regards its number of maternity beds, then in quarters provided on the spot or close adjacent by the authorities of this hospital. During the two months each student should be apportioned a certain number of patients as is the custom in the medical and surgical wards, and not only be accompanying the chief on his round. Every student should personally deliver thirty women.

Teaching of Postgraduate Gynecology

There are three groups of candidates for postgraduate instruction in gynecology: those who seek an internship in special obstetric and gynecologic hospitals; recent graduates who take supplementary intensive courses leading to an additional degree; and physicians in act-

tive practice who voluntarily present themselves for postgraduate instruction. It is the business of undergraduate schools to prepare their students for the practice of medicine. The teaching of the refined technic of major surgical procedures might well be curtailed in undergraduate schools. A special gynecologic service should be conducted in all hospitals. The departmental fusion of obstetrics and gynecology is highly desirable. Fellowships and long courses of more than one year produce more teachers and research workers than practitioners.—W. T. DANNREUTHER: *Am. J. Obstet. & Gyn.*, Feb. 1930.

Anatomy, Orthodox and Heterodox, in Relation to Surgery

It is essential that the student during his fourth and fifth years should maintain that knowledge of anatomy with which he was endowed when he entered on his clinical studies, and it would probably be to his advantage if he even added to it. Much more of the "heterodox" anatomy should be available for the student prior to his entrance to the wards, if he is going to have the anatomical knowledge so needed in elucidating his cases therein. To this end I would urge that it should be made possible for the student during the time of his dissecting the body to see typical clinical instances which illustrate common points in anatomy.

There are numerous "chronic"—that is, permanent—cases, which should be available at the time they are needed. I am thinking of such as a typical uncured ulnar nerve paralysis, which should show more forcibly than all the textbook description, and even the dissection of the nerve, its peripheral distribution, the characteristic position of the digits, and particularly that of the ring and little fingers. Then the anatomical reasons for the results can be demonstrated, and the student impressed with the fact that,

after all, anatomy is of some real use.

When the medical school and the hospital are adjacent, there should be no real difficulty in bringing about this co-operation, if both parties were really keen on the matter.

Why should not the anatomist be invited to the ward, there to give a short dissertation on the anatomical bearings of the case at hand? Or why should not the surgeon visit the anatomical department, and there instill into the anatomy student a desire to know anatomy because it is going to be a matter of real importance to him in the future?—W. McADAM ECCLES, *British M. J.*, March 1, 1930.

Academic Career in Surgery

The minimum time required to receive a competent training in the art of surgery is probably not less than five years. This means, in relation to our modern hospitals, an internship, an assistant residency and a period as resident in some University Hospital. Where one achieves this experience is a matter of some importance, for in one place surgical procedures may be done merely to accomplish the day's work, whereas in another place they are accomplished by people anxious to teach others and to point out lessons, both in the art and philosophy of surgery, which will broaden a man's outlook at the same time that he acquires practice in the art. Moreover, there are certain things to be said about continuity of service in this period of training. Most people who are seriously interested in teaching have a feeling of respect and devotion for their disciples of much the same quality as the disciples may feel for their chief. It is obvious that the longer the pupil remains with his teacher the more interest the teacher will show in him and, as a result, the more the pupil will benefit. There are, on the other hand, certain advantages in moving about, in being intern in one place and assistant resident surgeon elsewhere, pro-

vided both teachers under whom one works are of the best type. But there is the disadvantage that, in the case of the people who go from clinic to clinic, they may never stay long enough to have the chief of that clinic focus his interest seriously on the individual pupil, and thus the greater benefits of teaching are really lost, or at least diminished in value. Moreover, it is certain that if one remains for a long period of time in a single clinic and becomes entirely familiar with the hospital and its functions, he can find ever increasing responsibilities and opportunities for work. Under such circumstances of long residence a pupil wins greater confidence, is given greater responsibilities, will be given the opportunity to teach, and will perhaps

share in the investigations carried on by his own chief. The mental stimulation from such contacts cannot be equalled by any amount of moving about.

But even if a man has mastered the art of surgery, let us say, in the first five years after graduation from medical school, there is much else he must acquire. In this period of five years he should also have acquired a considerable experience in teaching. He will have taught both students and nurses and the opportunity to teach nurses and also to learn from them during this period of association in teaching may be, to a young surgeon, one of his greatest periods of stimulation and education.—ELLIOTT C. CUTLER, *New England J. M.*, March 27, 1930.

Book Reviews

Devils, Drugs and Doctors.

The story of the Science of Healing from Medicine-man to Doctor.

By Howard W. Haggard, M. D. Harper Brothers, New York. 1929. Price \$5.00.

This is a most fascinating and entertaining book, written in a delightful manner and containing a wealth of authentic material and anecdote in the history of medicine. The author describes medical practice among savages, surgical operations performed by Egyptians and many interesting developments in medicine. After all, modern methods and procedures are really of very recent origin. The past 150 years have been the most significant in the history of medicine. During that period of time nearly all advances in medical practice can be chronicled. For instance, the development of obstetrics, the discovery of anesthesia, the broadening of the field of

surgery, the conquest of epidemics and control of infectious diseases—all indicative of the trend toward a better civilization. And yet, how much of ancient medical practice is still traceable in modern practice. The entire story is told by Haggard in such an intriguing way that the desire prevails to finish it in one sitting even though that is impossible because there are 400 pages to read.

Medical man and layman alike will enjoy this book. It is essentially a historical record but reads more like a historical novel than the usual dry historical record of passing events. Everybody will enjoy reading this book. It is interesting. It is amusing. It is educational to the highest degree.

An Introduction to the Study of Human Anatomy

By Robt. J. Terry, A. B., M. D., pro-

fessor of anatomy Washington University. The Macmillan Company, 1929. Price \$3.50.

The author's method of teaching anatomy is well and favorably known. It is essentially the "method of inquiry." It is intended to arouse an interest in anatomy for anatomy's sake and because anatomy is the most important of the fundamentals of the practice of medicine. By this book the student is encouraged to work independently of texts and demonstrations. There is no descriptive text—but certain necessary procedures are described. Here and there questions direct attention to the studies of human constitution usually made in other departments of biological science not directly concerned with the study of man. Students are directed to the clinic to witness cases which demand a certain knowledge of anatomy; likewise to the museum for pathological specimens which embrace anatomical problems. At the same time references to the literature encourage reading. Everything he does is verified by inquiry. This book will prove of great value to the thinking student who is being guided carefully by an interested but not pedantic teacher. It is in line with modern views of teaching.

Osteomyelitis and Compound Fractures and Other Infected Wounds

By H. Winnett Orr, M. D. The C. V. Mosby Company, St. Louis. 1929. Price \$5.00.

This is essentially a description of the author's method of treatment of infected wounds, especially of bones and joints, by drainage and rest. Clinical clerks will find this book valuable for collateral reading and as a reference work. The method has found acceptance by practical surgeons everywhere.

Medical Leaders from Hippocrates to Osler

By Sam'l W. Lambert, M. D., and George M. Goodwin, M. D. The Balch-Merrill Company, Indianapolis. 1928. Price \$5.00.

This is a short resumé of the history of medicine written by two masters of the subject in a delightful and intensely interesting manner. It is based wholly on the personal achievement of the twenty men they talk about. The work is a condensed biography of these twenty most outstanding members of the profession who made the most notable and epoch-making contributions to progress in medicine. Gorgas and Osler are the only two men of the present generation mentioned, the one because of his contributions to preventive medicine, the other because of his tremendous influence on medical education. Those who are not well informed on the history of medicine will especially enjoy reading this book, and lecturers on medical history may with profit adopt it as a text for the short courses which an already overcrowded curriculum permits in this charming field of research. The publishers merit much praise for the beautiful mechanical portion of the book. Paper and type combine to make of it a work of art.

The American Illustrated Medical Dictionary

15th Ed. W. B. Saunders Company, Philadelphia and London. 1929.

This edition is said to be the most complete revision of the book ever made. Thousands of new words have been added; all definitions have been revised, and a definite standard in terminology, spelling, hyphenization, etc., has been adopted. The re-editing of the book was done by members of the editorial staff of the Journal of the American Medical Association. The book is a ver-

itable encyclopedia of information and knowledge. Certainly, no medical student can afford not to have a copy of this dictionary. It is the one book in his working library that he cannot do without.

Demonstration of Physical Signs in Clinical Surgery

By Hamilton Bailey, F. R. C. S. (Eng.)
21th Ed. William Wood and Company, New York. 1929. Price, \$6.50.

Fourth year students and clinical clerks will find this book a valuable aid in their work. It is very concise and well illustrated. The arrangement of the text is by regions. A subtitle of the book might well be: development of touch, sight and hearing.

A Manual of Midwifery

By Henry Jellett, B. A., M. D. (Dub.) and David G. Madill, B. A., M. B., B. Ch., B. A. O. (Dub.), L. M. 4th Ed. William Wood and Company, New York. 1929. Price, \$10.00.

The teachings of the well known Rotunda Hospital are accepted the world over and the authors served there for many years as master and assistant master. That the book has gone into four editions may be taken as evidence of its popularity. The division of the text is the usual one. One chapter is devoted to the care of the infant, infant feeding and the pathology of the infant. Nearly 600 illustrations elucidate the text. A number of chapters have been rewritten and new ones added thus bringing the text up to date. It is a rather large book, of more than one thousand pages, but the authors' style is good and their teachings are acceptable.

Symptoms of Visceral Disease

By F. M. Pottenger, A. M., M. D., 4th Ed. C. V. Mosby Company, St. Louis. 1930. Price, \$7.50.

A study in pathologic physiology, of the vegetative nervous system in its relationship to clinical medicine. Symptoms are interpreted in terms of visceral neurology and from the standpoint of the patient who has the disease rather than from the disease process itself. It is shown how pathologic changes in one organ affect other organs and the organism as a whole through the visceral nerves. It is largely a discussion of viscerogenic reflexes. Clinical observation and analysis are stressed. The subject is handled extremely well and the author's extensive clinical experience and his researches in this field give those who are interested in this field much food for thought. The book is not one to be used by the undergraduate medical student, but graduate students will welcome it as a valuable addition to their workaday book shelf.

The Principles of Bacteriology and Immunity

By W. W. C. Topley, M. A., M. D. and G. S. Wilson, M. D., D. P. H. In 2 volumes. William Wood and Company, New York. 1929. Price, \$15.00.

Students of medicine and biology who wish to make a serious study of bacteriology and its application to the problems of infection and resistance will find this work to their liking. Parts I and II deal with general and systematic bacteriology; Part III with infection and resistance; Part IV with the application of bacteriology to medicine and hygiene, a very logical arrangement. The references appended to each part will prove valuable to the research worker. The authors have covered the field thoroughly. A cursory reading fails to reveal any omissions of important data.

A Graphic Guide to Elementary Surgery

By Prof. Dr. Th. Naegeli. Translated by J. Snowman, M. D. William Wood

and Company, New York. 1929. Price, \$5.00.

This book will appeal strongly to the undergraduate medical student. The text is reduced to a minimum. Simple illustrations are the main feature. The student sees what he should know and he is not taxed to read about difficult operations. Perception, careful thought and correct evaluation are stimulated to the utmost. The author discusses anesthesia, infections, wounds, hemorrhage, thermal and chemical injuries, injuries and diseases of bone, tumors, grafting, surgical treatment by operation (very briefly) and methods of examination. This book inaugurates a new departure in teaching and the author's experience vouches for its worth.

The Essentials of Human Embryology

Gideon S. Dodds. John Wiley and Sons, Inc. \$4.00.

It has become increasingly evident in recent years that the curriculum of the medical schools is somewhat overloaded so far as student capacity is concerned, but the only relief in sight under the present scheme of organization in higher education, would seem to consist in plac-

ing some of the subjects of the previous years in the premedical (liberal arts) curriculum. The tendency in this direction is possibly indicated by the fact that certain medical schools have made embryology as a prerequisite. Accordingly no greater justification is needed for the type of textbook which Professor Dodds has given us, for while this book is written primarily for medical students, it is also readily comprehensible by those who have had courses in collegiate histology and comparative anatomy. This type of text therefore, viewed from the human rather than from a comparative embryological standpoint, is in a way prophetic of future developments in the biological section of the liberal arts curriculum. In remarkably concise space, but still in a very readable style, the author presents an admirable foundation for obstetrics and includes an excellent section on anomalies in development. Clean cut illustrations aid in giving it a high coefficient of "usability." This book is to be highly recommended for the purposes stated, while the general practitioner will find it a valuable addition to his library. Reviewed by M. Grier, Evansville College, Evansville, Indiana.

the prediction
liberal and
in this direction
the fact that
are indicated
According to
needed in
a Professor
in this matter
medical and
improbable
courses in
ative manner
ore, written
from the
ndpoint, the
e development
of the literature
rkably and
y readable
admirable
cludes in
n development
id in general
usability,
commended
ne general
able addition
by N. M.
Cvanevich.